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Improves Rail and Track Supply Plant

Colorado Company Makes Alterations to Handle 39-Ft. Milled-End Rails—Also Manufactures Oil-Quenched Angle Bars and Track Bolts

BY GILBERT L. LACHER*

CENTRALLY located between Chicago and the Pacific Coast, the Colorado Fuel & Iron Co., Pueblo, Colo., is an important producer of rails and track supplies for western and transcontinental railroads. To keep abreast of the new demands of the carriers the mill recently made extensive alterations and installed new equipment to manufacture 39-ft. milled-end rails. Within the past year and a half it has also put in new departments for the heat treating and oil quenching of angle bars and track bolts.

Modifications in the rail finishing department became necessary when the company received an order from the Southern Pacific early in April of the current year for 60,000 tons of 39-ft. rails, milled at both ends. As the length specified was 6 ft. longer than the previously prevailing standard and end milling was called for, changes had to be made in the arrangement and equipment of the finishing facilities of the mill so that this tonnage might be handled on a production basis—in other words, as economically and expeditiously as possible. Inasmuch as the contract required delivery against 25 per cent of the tonnage by July 1, it became expedient to effect the alterations promptly. In this instance, also, the management met the wishes of its customer, completing the changes in 51 days, without interrupting operations.

The hot bed, as previously arranged, consisted of three parallel units wide enough to handle three parallel rows of 33-ft. rails. Each section of the bed was widened 2 to 2½ ft. by adding an extra skid. In addition, a fourth section was constructed, so that now four parallel rows of 39-ft. rails may pass over

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The Rail Hot Bed Had to Be Widened to Handle 39-Ft. Lengths. Three parallel sections were widened by adding one skid to each. An entirely new fourth section—the one in the foreground—was built also, so that now four parallel rows of 39-ft. rails may pass over the bed simultaneously

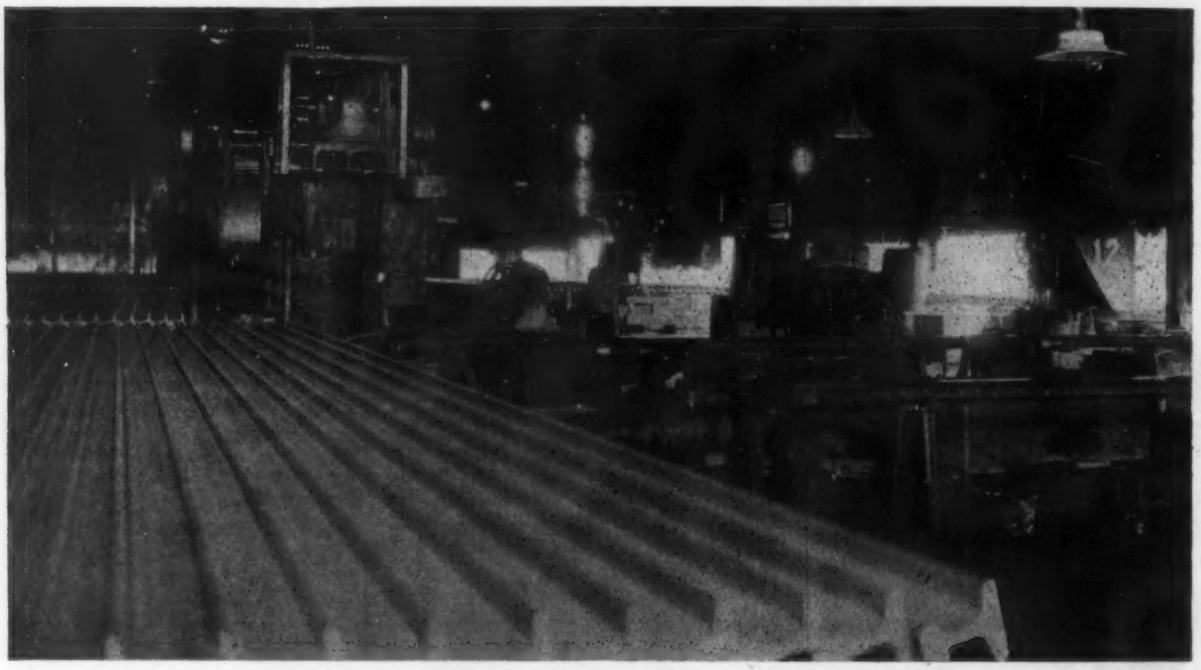
the bed simultaneously. As enlarged, each half of the bed, embracing two parallel sections, takes up all the space between the building columns, so that if still longer rail lengths ever come into general demand alterations cannot be made without reconstructing the building.

The bed is of the inclined type, 160 ft. wide x 92 ft. long, and carries the rails upward to the finishing department. The inclination of the bed was dictated by the contour of the terrain rather than any preference for that type of construction. It so happens that the railroad siding serving the finishing end of the mill is necessarily on the same level as a nearby bridge over an irrigation ditch which passes through the company's property. Hence, it was in the interests of economical handling of material to elevate the finishing department above the inspection and loading dock, and the dock, in turn, above the railroad track.

The bed delivers the rails to a distributing table of one rail is being milled, the other end of the adjacent rail is being milled by the opposite ending machine. At the conclusion of the simultaneous milling operations the workmen first advance the rail which has been milled at both ends and then roll over the next rail, which has been milled at one end only, so that it is in position for milling at the other end. Likewise, they advance another rail from the row which has left the straightener, to position for the first milling operation.

The same procedure is followed by the drilling machine operators except that when they advance a rail which has been drilled at both ends, it is ready to be passed along the skids through openings in the outside wall of the building to the inspection and loading dock.

The finishing department embraces seven identical sections of the type just described, equipped with straightening press, a pair of ending machines, a pair of drilling machines, and the necessary intervening



In the Finishing Department the Straightening Presses and Drilling Machines Had to Be Respaced for the 39-Ft. Lengths and Ending Machines Had to Be Installed for Milling the Rail Ends. The illustration shows part of one of seven identical units, comprising a gag press, two enders and two drilling machines. Prominently shown at the left is a straightening press; at the extreme right is one of the drilling machines (marked 12); the machine adjacent to the drilling machine at its left is an ender

extending along one side of the finishing building, a structure 774 ft. long by 56 ft. wide.

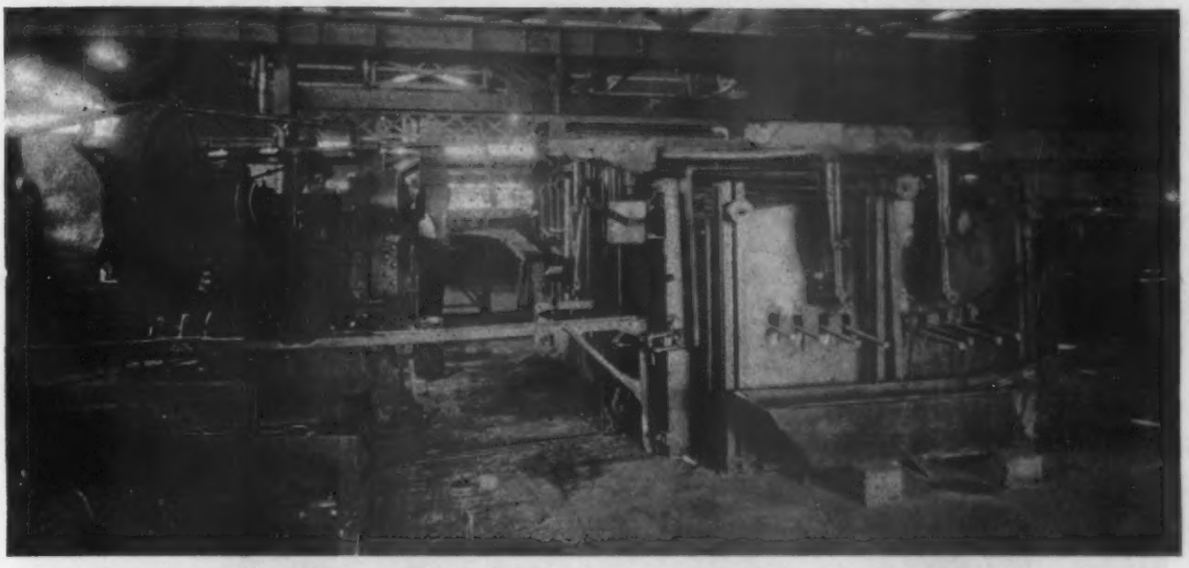
The first essential change in the finishing facilities was the respacing of the straightening presses and the drilling machines to handle the 39-ft. lengths. The presses at both ends of the structure were left in their original positions. This was possible because the gag press at the end nearest the bed was originally placed at more than the usual distance from the next press so that it could handle 60-ft. tram rails ordered in relatively small tonnages by electric traction lines. The remaining five intervening presses, however, were all relocated. No changes in the building itself were required outside of a 6-ft. extension at the end farthest from the bed, to accommodate the 39-ft. lengths when handled in the gag press at that extremity.

Out of the 14 drilling machines—two for each straightener—all but two had to be relocated. It was also necessary to install 14 ending machines. These were constructed in the company's own shops in the short period previously indicated.

Gag presses, ending machines and drilling machines are all individually driven by electric motors. Both the enders and the drill presses are slightly staggered so as to expedite the handling of the rails, which rest on intervening skids. In other words, while one end skids. Rearrangement of the skid rails, of course, was made necessary by the relocation of gag presses and drilling machines. The ending machines, alone, were entirely new additions to the equipment and they are of the usual design, consisting of a gear-driven rotating milling head, on which are three diagonal cutters fastened in place by set screws. Milling is now deemed necessary by some roads to secure squareness of the rail ends and positively to eliminate hot saw burrs. With larger rail sections coming into general use relatively less room for expansion is left between the abutting rails, so as to improve riding qualities and to prevent the spreading, nicking and chipping out of the rail ends.

A further improvement of the finishing department of the rail mill is the contemplated construction of a gantry crane to command the inspection and loading dock. At present the rails are moved by hand down the inclined skids on the dock to the loading track.

The rail mill, as now equipped, has a capacity of 500 to 600 tons per 8-hr. shift. It embraces a two-high 38-in. reversing blooming stand, which takes a 22½-in. square ingot weighing 7200 to 7400 lb., a three-high 28-in. roughing stand, a three-high 26-in. intermediate stand, and a two-high 26-in. finishing stand. All of the stands are steam-driven. Heretofore, the heaviest



Angle Bars Are Heated to 1800 Deg. Fahr. in the Furnace Shown at the Right. They are then passed by conveyor to the slotting machine to be noted at the left, following which they are punched, straightened and oil quenched

rail produced by the mill has been 100 lb. per yard, but preparations are under way to roll 110-lb. sections for the Southern Pacific system.

Although the mill equipment is standard in most respects, the hot saw is of a type commanding attention. Instead of being belt-driven, the usual method of propulsion, it is equipped with direct motor drive, the motor being carried on the free end of the tilting arm and being connected with the saw arbor by a flexible shaft. The hot saw is 48 in. in diameter and has a speed of 1300 r.p.m. The feed of the tilting arm is also motor-driven, power being transmitted through a worm gear.

The tendency toward more rigid specifications in rails is also to be observed in track supplies. Within the past few years an insistent demand has developed for hot-worked and oil-quenched angle bars, which are free from fine cracks and internal stresses and strains and at the same time show material improvement in strength and ductility, or toughness. About a year and a half ago the Colorado mill built equipment for supplying this demand.

Angle bars are cut to length in a motor-driven down-cut shear constructed in the company's shops. They are then carried by a roller conveyor to the feeding end of a heating furnace, where they are charged in two rows by motor-driven pushers. The furnace is 10 x 27 ft. x 5½ ft. high over all, and is constructed of silica brick covered with steel plates between the buckstays. The angle bars pass down a solid skid over which are hung water cooling pipes. The furnace is fired by by-product coke oven gas, but is arranged so that oil may be burned, if desired. Blast is supplied by an American motor-driven blower. Burners are located on the sides, both above and below the skid and at the discharge end.

Angle bars are ordinarily heated to 1800 deg. Fahr. and remain in the furnace chamber an average of one hour. At the discharge end they are deposited on a continuous motor-driven conveyor, which carries them out of the chamber to a roller conveyor serving slotting and punching machines. By means of a gravity conveyor from the shear to the conveyor leading to the slotter, angle bars may be by-passed for cold working.

The slotter was built by the Long & Alstatter Co., Hamilton, Ohio, and is direct-driven by a motor, which

Angle Bars Are Quenched in a 20,000-Gal. Oil Tank at a Temperature Held Under 190 Deg. Fahr. The bars are carried from the straightening press by a roller conveyor, shown in the right foreground, and discharged into the bath. A continuous slat-type conveyor passes them through the oil to the discharge end, where they are deposited on an inspection and sorting table

is also used to propel the furnace discharge conveyor. After slotting, the angle bars are passed under a G-type Long & Alstatter punch press, which is located on the other side of the conveyor to obviate the necessity of turning the bars around. From the punch the bars are advanced on the conveyor to a Hilles & Jones straightening press from which they are carried by gravity conveyor to the quenching tank. The straightener, punch and shear are driven by single rope from individual motors.

The quenching tank is 10 x 40 ft. x 8 ft. deep, and is constructed of reinforced concrete with a covering of steel plates. It has a capacity of 20,000 gal. The temperature of the bath must be kept under 190 deg. Fahr., and is recorded on a thermometer located on top of the tank. That regulation of the temperature has been uniformly successful is indicated by the fact that in one and a half years of operation the bath has never caught fire. Temperature regulation is facilitated through a continuous circulation of water through coils of pipe located around the inside walls of the tank. The oil itself is in continuous circulation, being pumped to and from two 10,500-gal. steel reservoirs situated outside the building. Two Kinney 8 x 4 x 8-in. oil pumps geared to 10-hp. motors are situated in a concrete pit adjacent to the quenching bath. One pump only is used, the other being held in reserve for emergency purposes. Eureka quenching oil supplied by the Continental Oil Co., Denver, is used. For quenching purposes an oil is required which will not get viscous and has the most favorable cooling properties.

The accumulation of oxide scale from the bars is not large, as it has been necessary to clean out the tank only once since operations were started.

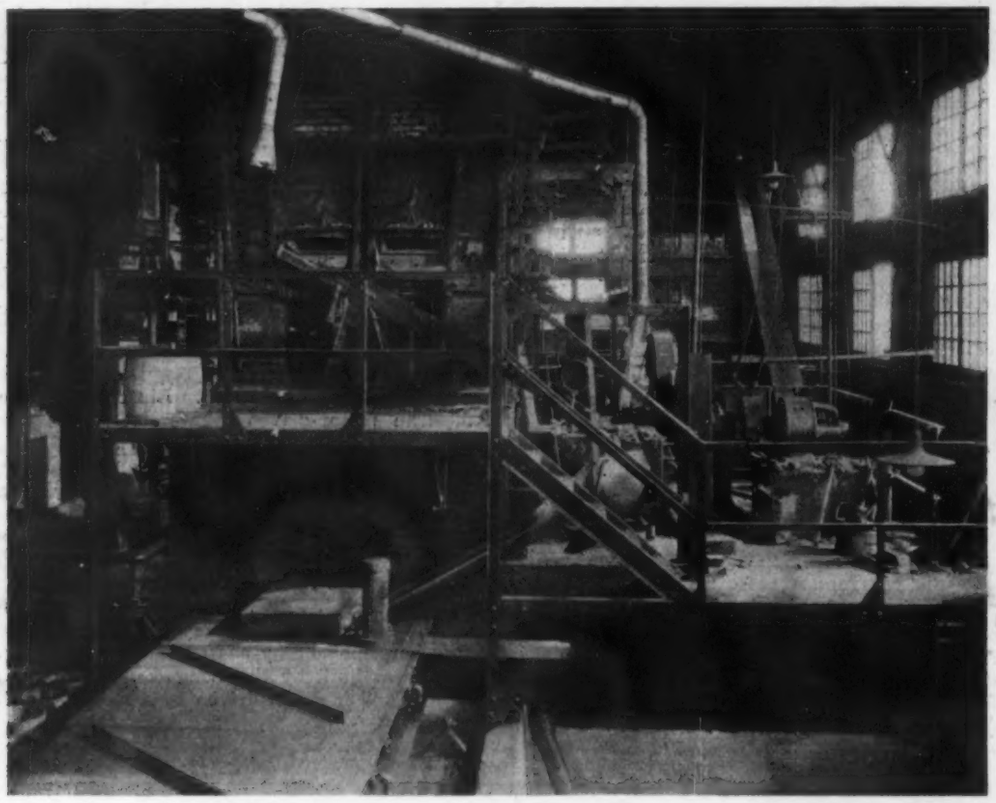
Angle bars are carried through the bath by a motor-driven continuous slat-type conveyor built by the Link-Belt Co., Chicago. The conveyor is inclined toward the discharge end, and deposits the bars on a gravity conveyor leading to an inspection and sorting table. They are subsequently carried away by overhead electric crane for weighing and shipment. The speed of the bath conveyor is variable, ranging from 5 to 15 ft. per min., propulsion being by a variable speed motor. The capacity of the hot working department is 45 tons of angle bars per 8-hr. shift.

Adjacent to the hot working equipment are a shear, slotter and punch with connecting conveyors for cold-working angle bars.

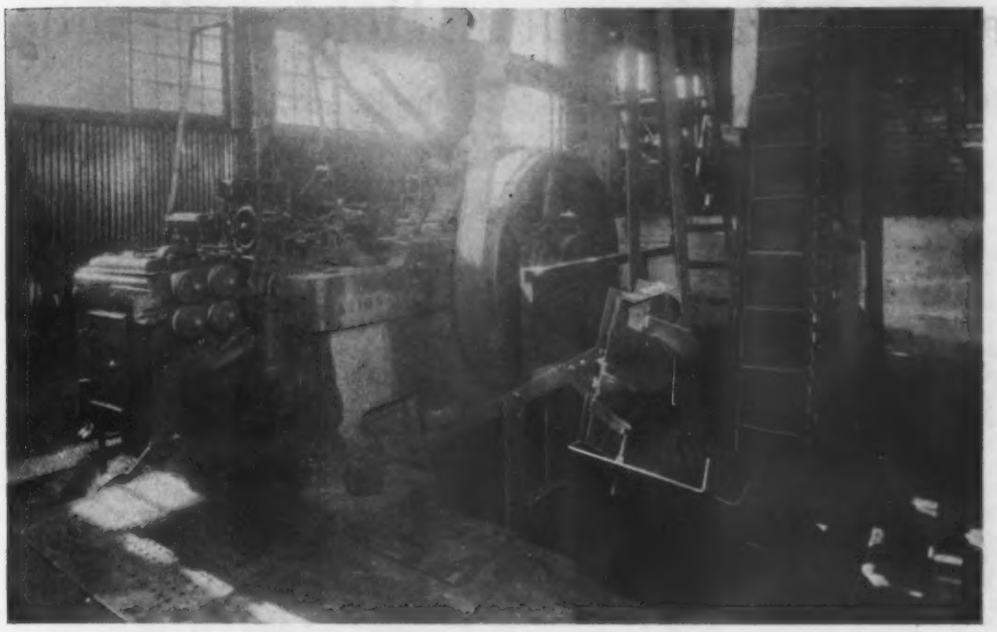
In the same building is a battery of four punches with a capacity to punch 4000 tons of tie plates a month. Both tie plates and angle bars are rolled on a 14-in. merchant mill (in the same structure). This mill, incidentally, is used also for the production of merchant and concrete bars, small shapes, and light rails. It is served by two hot beds, one for bars and the other for bar angles, light rails, tie plates and angle bars. Within the past 10 days the two heating furnaces serving the mill were altered to use the surface system of gas combustion, and it is estimated that the change will increase their capacity 33 1/3 to 50 per cent. Coke oven gas is burned.

The company's department for heat treating track bolts is also of commanding interest. Heat treating increases the tensile strength of bolts 50 per cent and, likewise, permits the use of a much heavier nut, ¼ in. thicker than those ordinarily employed. The department has been in operation for a year and a half and its capacity is 65 kegs per 8-hr. shift. Bolt stock (0.40 to 0.50 per cent carbon steel is generally used) is given a preliminary heating in a continuous coke-oven gas-fired furnace and is then passed into a 1-in. semi-hot bolt machine, built by the National Machine Co., Tiffin, Ohio. The feed rolls of the machine are water-cooled and every working part is oiled. There are three oil reservoirs and with every 19 revolutions of the machine, some working part is subjected to a stream of oil. The machine is driven by flywheel from a countershaft.

Bolts are discharged from the machine to a continuous conveyor and then down a chute to a bucket elevator, supplied by the Link-Belt Co. The elevator carries the bolts up to a gate by means of which they are thrown on either side into hoppers serving twin bolt furnaces. The furnaces have three burners each, but it has been found necessary to use only two, or a total of four. Coke oven gas is burned. Blast for these



In Twin Bolt Furnaces the Track Bolts Are Heated to 1300 to 1500 Deg. Fahr. and Then Are Raked Out into a Chute Leading to a Roll Threading Machine, Located on the Platform Below. From the threader the bolts pass by gravity chute into the oil quenching bath shown below



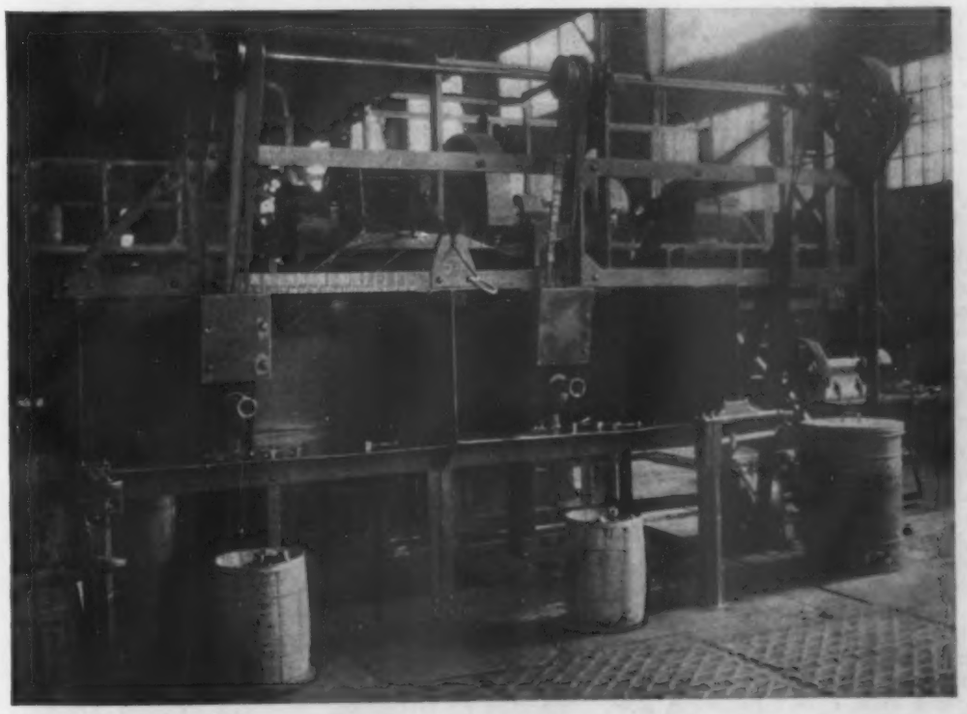
Heated Bolt Stock Is Fed into the Rolls of a National Semi-Hot Machine, from Which Track Bolts Are Carried by Continuous Conveyor to the Top of a Chute Leading to a Bucket Elevator. By the elevator they are raised to hoppers serving twin heat-treating furnaces

burners, as well as the eight burners on the furnace serving the bolt machine, is supplied by a No. 10 Sturtevant blower. A single motor supplies power for the blower, the bucket elevator and the bolt heading machine. The heat treating furnaces are constructed of fire brick supported by buckstays, and raise the temperature of the bolts to 1300 to 1500 deg. Fahr. Both the bolt furnaces and the continuous preheating furnace are equipped for burning oil in an emergency.

Bolts are raked out of the heat treating furnaces to a gravity chute leading to a motor-driven roll threading machine. After threading, the bolts are kicked into an oil quenching bath with a double circulating oil system, like that used in the angle bar department. The oil is contained in a 5000-gal. steel tank, 5½ x 28 ft. x 5 ft. deep, and reposes in a larger concrete tank filled with water, so that it is water-jacketed. In addition, water circulating pipes are located inside the oil tank itself. In an adjacent concrete pit are two motor-driven oil pumps, identical with those serving the angle bar quenching tank. One of these is used and the other is held in reserve. Oil is continuously pumped in and out of the bath to and from a 10,500-gal. oil reservoir situated outside the building.

The temperature of the oil is maintained at 100 to 130 deg. Fahr. The bolts ordinarily remain in the bath about three minutes, being slowly passed through it by an inclined continuous slat-type conveyor, built by the Link-Belt Co. The speed of the conveyor is variable, ranging from 5 to 15 ft. per min.

From the conveyor the bolts are discharged through a bifurcated chute to tables serving two nutting machines, driven by the same motor which operates the conveyor. Here the nuts are applied and the bolts are dropped into adjacent kegs reposing on scales for weighing. Inspection is also done at this point. Nearby is a nut testing machine equipped with 24-in. wrench and scale. On 1-in. bolts an allowance of from 30 to 90 lb. is permitted. Kegs are loaded into cars from the shipping floor by a motor-driven portable elevator.



By Continuous Conveyor Track Bolts Are Carried through the Oil Bath and Discharged Through a Bifurcated Chute to Tables Serving Two Nutting Machines. Here nuts are applied and the bolts are dropped into adjacent kegs reposing on scales for weighing. In the right background is a nut-testing machine

Congress on Management Held at Prague

Presentation of American Methods for the Benefit of the Nations of Central Europe—Skoda and Witkowitz Works Visited

(Special Correspondence)

PRAGUE, CZECHO-SLOVAKIA, Aug. 2.—The Prague International Management Congress, held in this city, July 20 to 24, and supplemented by a tour of the country to inspect its industries, was attended by upward of 500 engineers and manufacturers, of whom over 60 were Americans. Judged by the character of the papers presented and the standing of those attending, the congress will rank as comparable with any engineering congress ever held. Judged by its results, it will undoubtedly prove to be one whose effects are far-reaching and of momentous importance. Every one of the eight formal technical sessions was crowded to the capacity of the hall, and the proceedings were followed with intense interest throughout.

Origin of the Congress

The congress was conceived by the Government of Czecho-Slovakia as a means of introducing into that country the methods of management that have helped to give America its industrial supremacy. The Government recognized that the only hope of repairing the damages of war and of putting the nation on a sound financial basis lay in the development of its industries and of operating them in the most efficient manner. The late Major Frank B. Gilbreth, in the course of several trips to Czecho-Slovakia had impressed on the officials of the Government the importance of good management in their industries, and early this year an invitation was extended through the American Engineering Council to the American engineering profession to organize and participate in a management congress in Prague.

The organization and program of the congress was intrusted to the five American societies primarily interested in management, viz., the American Management Association, the American Society of Mechanical Engineers (management division), the National Association of Cost Accountants, the Society of Industrial Engineers, and the Taylor Society. The committee on American participation appointed by these societies consisted of Dwight V. Farnham, Robert T. Kent, Howard D. Greeley, Frank B. Gilbreth and Dr. Harlow S. Person. Dr. Bedrich Stepanik, former Czecho-Slovakia minister to the United States, and Miss Ruth Reticker, assistant to the director of the Taylor Society, were later added to the committee. The Czech government had indicated the subjects for discussion that would prove of greatest value to the industries of central Europe, and the program was laid out along the lines indicated.

Nature of Scientific Management Outlined

The congress was opened on July 20 in the Pantheon at Prague by a formal welcome to the delegates by the officials of the Government, of the City of Prague, and of the Masaryk Academy. A memorial service for Major Gilbreth followed. The technical sessions began on the following day with the presentation of a paper by Major Fred J. Miller, entitled "Scientific Management, Its Nature, Tendencies and Achievements," in which was outlined the development of the philosophy of Taylor, on which modern management is based. Three supplementary papers followed by Robert T. Kent, Prof. Joseph W. Roe, and Morris Llewellyn Cooke respectively dealing with specific phases of management.

Mr. Kent stressed the point that scientific management does not consist in the adoption of a particular routine or a set of forms, but is rather the application of certain definite principles, the method of application being varied to suit each case. Professor Roe emphasized the statement of the late Henry L. Gantt that good management comprises the having of the materials of production when they are needed, where they are needed and in the condition desired. Mr. Cooke dealt with the relations that should exist between the management and the employees. "Unless mutual confidence exists, there can be no such thing as good management."

Doctor Verunac, of the Masaryk Academy, then outlined the steps being taken to develop scientific management in Czecho-Slovakia. These include the establishment of various institutions and commissions, among which are the Masaryk Academy of Works, the Engineering and Industrial Union, the Standardization Society, an institute for the economical exploitation of fuel and a commission for the study of the methods of scientific management. These institutions are making investigations into the activities of all the industries of the country. The importance of scientific management as an instrument for world peace was discussed by Stan. Spacek, who outlined an international organization whose activities in the dissemination of the principles of management would tend to promote a better understanding among the peoples contributing to it, and which thereby would tend to remove causes of war. The activities of the Masaryk Academy were explained in a paper by Dr. B. Tolman.

Human Element in Management

The human element in management was the subject of the second session of the congress. Henry C. Link discussed the subject from the standpoint of the individual relations that exist between employer and employee. His paper covered the various questions that affect the relations of the two, and touched on such points as safety engineering, medical service, health maintenance, industrial fatigue, selection of employees, psychological studies, training and education of employees and foremen, and labor turnover. In the analysis of the labor turnover of a large corporation the causes of employees' leaving were classified under different headings, which called attention sharply to several conditions that required correction in the plant. Some of the causes listed were: Dislike for the work; dislike for the working conditions; dissatisfaction with the discipline; work too difficult; wages too low; better job found elsewhere. The analysis indicated that the instability of working forces and the conditions that cause men to change are more complicated than is commonly supposed, and that the task of maintaining a stable labor force is one calling for a broad range of diverse activities.

The subject of the human element was further discussed by Edward S. Cowdrick in his paper, "Labor Relationships in American Industry." The paper covered two phases of the subject, that of industrial justice, and that of the financial incentives offered to labor. The former discussed the means that have been employed to secure justice, including the development of the labor union, and the more recently forms of employee representation. The latter discussed standards of wages, methods of wage payments, profit sharing, and stock distribution. In conclusion Mr. Cowdrick said that industrial leadership in the United States has devised no single formula by which the problems of labor relationship can be eliminated. These problems call for persistent effort, honest purpose and the patience to wait for their gradual solution. American methods are not necessarily applicable to other nations. Principles of justice and good-will, however, are uni-

versal, and on the recognition of these must be built whatever systems that are to prove of lasting benefit to industry.

A large number of other papers dealing with the same general topic were presented at this session. These were mainly by engineers from Czecho-Slovakia and other European countries.

Budget and Production Control

The control of business, both from the standpoint of the business as a whole and from the standpoint of production, attracted considerable attention, being the subject of two sessions. A masterly paper by Howard Coonley, on "The Development of an Industrial Budgetary Control," outlined the objects of this new device of management as: 1. A sales guide to provide an accurate forecasting of customer demand, and the use of the forecast both for a basis of production and as a foundation for a merchandising campaign. 2. A production guide to provide an intelligent program of manufacture that will insure a supply of merchandise in advance of demand, while keeping inventories in proportion to that demand. It also aims to prevent fluctuations in employment which tend to decrease efficiency and contentment, and further, to arrange for maximum production at the season when efficiency is at its highest point and the labor supply is ample. 3. A financial guide to estimate the amount of working capital that is permamently required by the business, and also to indicate the amount of outside money that will be needed to take care of the peak of the business.

To assure proper budgetary procedure three fundamental essentials must be considered. First, a sound plan of organization, with the authorities and responsibilities of the organization well defined and adequately maintained. Second, the records must be so established as to place definite responsibility on each unit of the organization. Third, the business budget itself must be a forecast of future accounts in terms of organization responsibility.

Production control was discussed in the paper of Col. George D. Babcock, which laid stress on the fact that accurate control could only be accomplished by careful preplanning of all the activities of the plant. The establishment of a production schedule was outlined, and the factors that enter into such a schedule, such as operation analysis, purchase programs, the control of stores, the dispatching of work and the inspection of product were treated in detail. The presentation of the paper comprised a description of the application of the principles described to the plant of the Holt Mfg. Co., Peoria, Ill., where a production record of 645 consecutive working days of exactly scheduled production had been accomplished up to July 1 of this year, a record probably unequalled in the history of industry. This paper attracted more attention than any other presented at the congress.

In a paper on sales management, which was another subject which was considered at the request of the Czecho-Slovakian government, C. K. Woodbridge outlined the organization and methods of the Dictaphone Co., discussing the subject from the standpoint of sales planning and sales operation.

Education for Management

The final session of the congress had for its subject education in its various phases. Vocational education was the title of a paper by Channing R. Dooley, who traced the development of vocational education in the public schools, in the trade schools and in the industrial plants of America. Mr. Dooley stated that the object of vocational education was first to give each student that kind of an education which he required in order to earn a livelihood in accordance with his natural ability and ambition, and second, to give him broader ideals of life which will make him a better citizen.

William E. Wickenden presented a paper entitled "Education for the Profession of Engineering," in which he outlined the trend of present-day educational policies and compared American and European standards of education. George W. Coleman discussed the subject of advanced and specialized education for commerce and business administration in universities, colleges and schools of engineering, and showed the necessity of closer cooperation between the educational and business institutions. In addition to the foregoing papers contributed by the American committee, there were a large number of others on the subject of education, by European engineers and educators. These included one by Prof. J. Jedlicka on uniform organization of knowledge and education, three papers on education for the profession of engineering by Dr. V. Verunac, Dr. Klir and Dr. E. Pokoro respectively, and one on the education of engineers for the management of industrial concerns, by J. Prokop.

In addition to the papers forming the regular program, there were a large number of supplementary papers dealing with various subjects. Among these may be mentioned one by W. W. Nichols on belting purchase and maintenance, the role of machinery in American agriculture by H. R. Tolley, the United States Department of Commerce and its relation to business, by H. Lawrence Groves, and industrial research in the United States, by Maurice Holland.

The Industries of Czecho-Slovakia

Following the congress sessions, the delegates spent a week in visiting the industries of Czecho-Slovakia. The most noteworthy plants visited were the Skoda Works at Pilsen and the Witkowitz steel works at Ostrava. Both of these plants were splendid examples of modern engineering and represented the most advanced practice. The Skoda Works have been largely rebuilt since the war and are the equal of any metal-working plant in the world. Of particular interest is the foundry where gray iron castings are made, which are superior in finish as they come from the sand to any that the writer has ever seen. The striking feature of this foundry is the use of electric arc furnaces instead of cupolas for melting the iron. The forge shop is equipped with some splendid hydraulic forging presses as well as with a number of large steam hammers. The largest part of the forging, however, is done in the presses. Among the products noted in the forge shops were large gun forgings, stem and stern frames for ocean-going vessels, steel car wheels and axles and other very heavy work. The product of the Skoda Works is extremely varied, ranging from military equipment to locomotives and hoisting and conveying machinery.

Well-Equipped Steel Works

The steel works at Ostrava is the equal of any steel works in the world. The open-hearth plant is equipped with Talbot furnaces and the rolling mill is equipped to manufacture any form of rolled product. A particularly noticeable feature was the plate mill which has a capacity of rolling plates up to 166 in. wide. The mill is equipped throughout for mechanically handling the product and was operating at high speed with a remarkably small number of men. Of particular interest to the visitors was the power station which comprised eight large gas engines operating on blast-furnace and coke-oven gas. The waste gases from the engines generate steam in waste heat boilers, the steam later being used in steam engines.

The general impression gained by the delegates to the congress in regard to the industries and people of Czecho-Slovakia was that the industries are well equipped and with careful management will be able to compete with similar industries in any part of the world, and that the people are extremely progressive, and highly advanced from the technical standpoint. The railroads of Czecho-Slovakia are an instance of the progress that the nation has made since the war. Taking over the broken-down railroads of Austria, the Czechs have improved them to a point where they are the equal of any and superior to most of the railroads of Europe. The tracks are heavy, smooth and well ballasted and the locomotives are powerful machines of the most improved type. The cars are above the average in size and capacity as measured by European standards. What is true of the railroads seems to be true of every industry visited by the delegates to the congress.

Electric Cleaning of Blast Furnace Gas*

Analysis of Losses Incurred by Releasing the Latent and Sensible Heat of the Gases—Comparison with Manufactured Gas and Its Sales Value

TWO things may be wasted in a blast furnace gas—the gas itself and the dust which it contains. Some years ago A. E. Maccoun stated that during one test a little over 200 lb. of flue dust was produced per ton of iron made. In the production of 40,000,000 tons of iron per year, therefore, about 4,000,000 tons of flue dust will be made. How much of this is being wasted it is hard to say; for dust is caught in the cyclone dust catchers, the mains, the combustion chambers, and the brickwork.

This 4,000,000 tons of flue dust has a real value, for its iron content is often greater than that of the ore itself. Fortunately one need not emphasize this point to blast furnace men, for the strenuous post-war period has awakened a national consciousness to the elimination of needless waste.

Last year upward of 40,000,000 tons of coke, if not a greater amount, was consumed in the production of American iron. What may be the cost of this coke is problematical, but at an average price of $5 a ton, which is probably low, then $200,000,000 worth of coke was used in producing the iron of this country during the last year. Only half of the coke burden is actually consumed in the furnace; the other half is emitted from the furnace top in the form of gas. Therefore, of the coke which was charged into the blast furnaces of this country $100,000,000 worth was burned in the furnaces and another $100,000,000 worth was burned in auxiliary equipment.

Yet the care and attention which the first $100,000,000 worth received was immensely greater than the care and attention which the second $100,000,000 worth received, although they were brothers and not first cousins. Peculiarly enough, it is much easier to conserve that part of the coke which issues in the form of gas than the portion consumed in the blast furnace proper.

The furnace operator has a definite grip on his gas every minute of the day. But the care and attention which other fuels demand are not required by blast furnace gas; for, once properly cleaned and when burned in the correct type of burners, it will yield its maximum possible thermal value with less irregularity than any solid or liquid fuel.

Comparison with Manufactured Gas Sold

During 1922, according to the *American Gas Journal* of Dec. 29, 1923, the manufactured gas sold in the United States amounted to 488,813,860 M. cu. ft., and had a total value of $337,116,805. In the absence of more authoritative figures, we may assume the average heat value of this gas to have been 500 B.t.u. per cu. ft., or a total of 244,400 million B.t.u.

During 1923, if we accept 140,000 cu. ft. of blast furnace gas per ton of iron as a fair average figure, there were produced about 5,600,000,000 M. cu. ft. of blast furnace gas, to which we may give a heating value of 90 B.t.u. per cu. ft., or a total of 504,000 million B.t.u.

There was consequently 11½ times as much gas produced by the blast furnaces as by the gas manufacturing plants which sold their product to the public. And the total heat value of the blast furnace gas produced was a little over twice as great as that of all the manufactured gas sold in the United States. Yet the value placed upon it is less than one-third of that for which the manufactured gas was sold; in other words, the blast furnace operator was allowed to buy his gaseous heat units for one-sixth the cost charged those who used manufactured gas.

A large water supply is required. To clean the gas that comes from a 500-ton furnace there is needed 2,000,000 gal. and upward of water per day. This necessitates an ample water supply and a large pumping equipment. To pump 2,000,000 gal. of water requires a considerable amount of power.

George M. Hohl, at the last session of the American Iron and Steel Institute stated that wet cleaners require 0.04 kw. for pumping the water needed to clean 1000 cu. ft. of gas. This means that 5.6 kw. per ton of iron are used for pumping water.

Even when there is plenty of water and the gas is satisfactorily washed there still remains the problem of getting rid of the water with all the dirt and sludge which it has removed from the gas. To discharge 2,000,000 gal. of dirty water into a stream is possible in some localities, simply because the community has not become sufficiently irritated at the nuisance.

Ill Effects from Carrying Dust Into Stoves and Boilers

Discussing Mr. Hohl's paper on "Cleaning Blast Furnace Gas," J. C. Barrett said that gas washed by wet cleaners often causes the residual dust, after the gas has passed through the cleaner, to bake in both the hot stoves and boilers. On the boiler tubes this wet dust forms a hard crust difficult to remove by ordinary methods of blowing. In the hot stove combustion chambers it builds up into a solid hard mass and also deposits as a crust on the top of the checkers.

The condition is much aggravated when the cleaner is not operating at its maximum efficiency and the gases are not cooled down sufficiently. For as the temperature of the washed gas is increased, its absorption of moisture is greater, and the dust is naturally wetter. But this is not the only objection to moisture, for each particle of water requires the use of heat to bring it up to the flame temperature of the gas; and consequently the heat developed for this purpose is not available for useful work.

The paradox of wet cleaning is that it must rob the gas of most of its sensible heat to give it the greatest efficiency in combustion. Richards and Johnson estimated 11 to 12 per cent of the total heat of the gas to be in the form of sensible heat, while later experiments by Joseph, Royster and Kinney gave 10 to 12 per cent.

If reference is made again to the $100,000,000 worth of coke which comes out of a blast furnace in the form of gas, and the figures quoted are accepted as correct, then from $10,000,000 to $12,000,000 worth of coke is in the form of sensible heat. This is what wet washing aims to waste, in order to get the greatest efficiency from the remaining $90,000,000 worth of coke.

While a blast furnace operator would look with great disfavor on a 10 per cent dilution of his blast furnace gas, with some inert material like nitrogen or carbon dioxide, he often accepts without discussion the necessary evil of losing 10 per cent of the heat of his gas by cooling his hot gases to the required degree found necessary in wet washing.

Not only are the total figures for the industry impressive but the figures which show what is going on at an individual furnace are sufficiently important to merit serious consideration. In a paper before the American Iron and Steel Institute in 1914 H. A. Brassert submitted several formulae to calculate the B.t.u. per cu. ft. of blast furnace gas, the cu. ft. of gas made per ton of iron and other interesting data.

By means of these formulae there have been developed data based on a coke rate of 2000 lb. per ton of iron at a furnace which has a capacity of 500 tons

*Abstract of paper read by N. H. Gellert, president Gellert Engineering Co., Philadelphia, before the joint meeting at Cleveland of the Eastern States Blast Furnace and Coke Oven Association and Blast Furnace and Coke Oven Association of Chicago District.

per day. The gas which comes from such a furnace will have a latent heat of combustion of 94.5 B.t.u. per cu. ft. There will be made 142,800 cu. ft. of gas per ton of iron, with an equivalent latent heat value of 13,500,000 B.t.u. per ton of iron.

But these figures do not include the sensible heat of the gas at its temperature of 400 deg. Fahr., which approximates the conditions at many blast furnaces. If we consider gas with an average composition of

Carbon dioxide	12.5 per cent
Carbon monoxide	24.5 per cent
Hydrogen	3.5 per cent
Nitrogen	58.6 per cent

having a moisture content of 35 grains per cu. ft., then the sensible heat amounts to approximately 8½ B. t.u. per cu. ft. at a temperature of 400 deg. This means that for every ton of iron made there is present in the gas a sensible heat value of 1,200,000 B.t.u.

Every ton of iron, therefore, is paralleled by the production of gas with a total heat value of 14,700,000 B.t.u. Every minute there comes from the blast furnace, in the form of gas, a heat value of 5,099,000 B.t.u.

To make it easy to calculate the B.t.u. value for a furnace of any capacity, the term ton-minute is devised. The gas per ton-minute is that amount of gas given off by the furnace during every minute, for every rated ton of daily capacity. According to these calculations 10,198 B.t.u. exist in the blast furnace gas per ton-minute.

Accepting the heat value of coke as 14,500 B.t.u. per lb., it may be seen that 1020 lb. of coke is the equivalent of the gas produced per ton of iron. This means that in a 500-ton furnace with a 2000-lb. coke rate, 351 lb. of coke are consumed every minute in the form of gas. The equivalent of the sensible heat in the gas is 80 lb. of coke per ton of iron. The question, therefore, before the blast furnace operator is clearly this: Shall he make use of these 80 lb. of coke or shall he, literally, throw them away?

The sensible heat of a gas is no less valuable than its equivalent in latent heat.

[Here follows a discussion of the electrolytic process developed by Mr. Gellert for the removal of dust from blast furnace gases, and its use at the plant of the Colorado Fuel & Iron Co. This was described fully at page 422 of THE IRON AGE, Feb. 7, 1924.]

When Ordering Brass Sheet, Rod or Tube*

Detailed Information from Customer Important, Is View of Bridgeport Brass Co.—Tolerances Discussed

OUR object in preparing these questions and included data is to help salesmen in obtaining as much information as possible to aid the mill in supplying the customer with just what he wants. On many occasions the salesman will not ask the questions outright, but they should be a guide in obtaining the information needed.

In some of the questions the request is made for samples of satisfactory and unsatisfactory material and articles made from it. We are asking this for this reason: Sometimes a customer will submit for duplication a sample right "on the line" between satisfactory material and that which is either too hard or too soft. When the mill endeavors to duplicate the sample, due to commercial variations its product will vary slightly on one side or the other. If, however, the mill knows that the customer is apt to have trouble if the metal runs on the hard side of the sample submitted as a standard it can work toward the soft side.

It will be found that most of the tolerances quoted below to which we hold our mill are closer than those specified by the American Society for Testing Materials. The A. S. T. M. specification numbers are as follows:

Rod	B 16-18
Sheet	B 36-21
Pipe	B 43-23
Condenser tubes	B 44-23 T

Rod:—To Determine Mixture and Temper

(a) How is rod to be used?
1. Is it to be bent? If so, how severely?
2. Is it to be machined? If so, what kind of operations are to be performed? Is extra stiffness necessary because of long overhang from chuck, small section at chuck or unbalanced tooling operation? Is it to be rolled threaded?
3. Is it to be headed or upset? If so, how severe are the operations? Get sample, if at all possible.
4. Is customer willing to pay for something special to meet peculiar requirements?
5. Is it possible to obtain a sample of article to be made? If so, our experts may easily be able to suggest better methods of tooling or short cuts. A sample of satisfactory and unsatisfactory articles and material will aid in giving us a clearer idea of what is required.

(b) What diameter is required? What are the tolerances? All plus or all minus?

Note: Our tolerances are:

Diameter or distance between parallel faces	Allowable variation
Up to ½ in., inclusive,	± .0010 in.
Over ½ in. to 1 in., inclusive,	± .0015 "
Over 1 in. to 2½ in., inclusive,	± .0020 "
Over 2½ in.	± .0025 "

These are the closest tolerances that we like to hold to, as closer tolerances increase the cost of the material.

(c) What lengths are desired? What are the tolerances?

Note: Unless exact lengths are specified, all orders will be shipped stock lengths, which are as follows: From ¼ in. to 1 in. diameter, inclusive, when ordered in 12-ft. lengths, no lengths shipped less than 8 ft.; when ordered 10-ft. lengths, no lengths less than 6 ft.; when ordered 6-ft. lengths, no lengths less than 4 ft.

When ordered in lengths given above, the weight of lengths shorter than the length ordered shall not exceed 40 per cent of any one shipment. For rods over 1 in. up to and including 2 in. in diameter or thickness the lengths shall be random lengths from 4 to 10 ft.; for rods over 2 in. in diameter or thickness, special lengths are required, but no length shall be less than 4 ft.

Note: The cheapest way to buy a brass rod is to buy a standard form and employ men with the necessary skill to tool it correctly, instead of putting upon the brass manufacturer the burden of supplying all sort of variations. Hardness has nothing to do with the free cutting qualities of brass, as it has with steel. We therefore prefer to use the word "stiff" instead of "hard" when referring to brass rod.

Sheet

(a) How thick is the metal required?
(b) What are the tolerances?

Note: Our standards are:

Thickness	Total variations allowed: To and including 5 in. wide	Over 5 in. wide
From 0.005 to 0.010 in.	0.0015 in.	0.002 in.
From 0.011 to 0.015 in.	0.002 in.	0.0025 in.
From 0.016 to 0.030 in.	0.003 in.	0.0035 in.
From 0.031 to 0.050 in.	0.0035 in.	0.004 in.
From 0.051 to 0.080 in.	0.0045 in.	0.005 in.
From 0.081 to 0.100 in.	0.005 in.	0.006 in.
From 0.101 to 0.125 in.	0.006 in.	0.008 in.
From 0.126 to 0.250 in.	0.008 in.	0.010 in.
Over 0.250 in.	0.010 in.	0.010 in.

Gage variations given here are total variations, one-half above and one-half below the normal thickness, and apply to the unslit bar. These tolerances are the closest that we care to be held to, as closer tolerances increase the cost of the material.

(c) Is the metal to be coiled or must it be cut to length? If cut, what are the lengths required?
(d) If the metal is to be cut to length, how much linear curvature is allowable? This will determine whether the metal can be slit or must be sheared. Our tolerance is ¼ in. in 5 ft.
(e) What are the requirements as to flatness? For cup-

* Prepared by Bridgeport Brass Co. for use of salesmen in dealing with customers.

ping processes, nothing more than commercial flatness is required.

(f) If hard sheet for bending or forming is required, what kind of bending or forming is it going to receive? Is a fine surface necessary on the bent portion? What degree of stiffness, if any, is necessary in the finished piece? This information will enable us to determine what temper is required.

(g) Answers to the following questions will determine the mixture and degree of anneal required. This is of the utmost importance if best results are to be obtained.

1. Is the customer going to use the brass for cupping, spinning or in the fabrication of tanks, boxes, etc.
2. If used for cupping—
   I. Is the operation a light or a heavy one?
   II. Is the cup subsequently to be annealed and drawn or is to be submitted to a forming process without anneal?
   III. Is it to be polished or nickel plated immediately after cupping and forming?
   IV. Is the article to be machined or threaded? Free cutting qualities can be imparted by a slight change in mixture.

Note: If a deep drawn cup is to be formed and polished, ordinary brass sufficiently soft for the deep cupping operation might produce a rough surface. The buffing operation would be more expensive than if the worked surface were smooth. Under such conditions the customer might save money by paying more for a low brass sheet and cutting the buffing cost sufficiently to make up more than the difference in cost of material.

In any case, it is a great help to have samples of materials which have been satisfactory and unsatisfactory, or a sample of the article to be produced, or both.

Tube

(a) What is the use to which the tube is to be put?
1. Is it to be subjected to bending? If so, how severe?
2. Is it to be expanded? If so, how much?
3. Is it to be subjected to corrosive action? If so, what are the conditions?
4. Is it to be threaded or tapped?
5. Is it to be tinned or nickel plated?

(b) What length, diameter and wall thickness are desired? What are the tolerances as to dimensions and eccentricity?

Note: For condenser tubes—no tube at its thinnest point shall be less than the thickness specified. The length shall not be less, but may be 1/16 in. more than ordered, at 70 deg. Fahr. No single tube shall exceed the calculated weight by more than 5 per cent.

For brass and copper pipe—no single piece shall exceed the calculated weight by more than 5 per cent. The weight of pipe as determined in normal weight pound per foot of length, as found in A. S. T. M. B43-23, may vary by 5 to 8 per cent, depending on the diameter. The thickness at any point shall not be less than specified in A. S. T. M. B43-23 by more than 5 to 8 per cent, depending on the diameter.

Pipe will be shipped in random lengths 12 to 18 ft. long, unless otherwise specified.

(c) Can samples of materials that have been satisfactory and unsatisfactory be obtained? With these samples we can consult with our technical and practical experts for methods which will benefit our customers.

General

(a) What deliveries are required?
(b) What is the most desirable routing?
(c) Is there any preference as to how material should be packed?
(d) Trade references and credit data, in case of new customers.
(e) In all cases, obtaining samples of material that has been satisfactory and unsatisfactory is of the greatest help and may save trouble and materially expedite shipment.

New Billet and Strip Mills at Bridgeport

American Tube & Stamping Co. Is Building 22-Inch Billet Mill and 12-Inch High-Speed Strip Mill

CONSTRUCTION of a new 22-in. continuous billet mill and a 9-in. to 12-in. high-speed strip mill is to be started at once by the American Tube & Stamping Co., Bridgeport, Conn., with the plan of having the mills in operation next February. The two new mills are to adjoin the group of open-hearth furnaces and booming mill in the Stratford Avenue plant of the company. The billet mill will be of six stands, designed to produce 1½-in. billets from 4-in. stock. The strip mill is designed especially for accurate and economical production of small strips, flats and rods.

Continuous Billet Mill

The new 22-in. mill will provide an intermediate step between the blooming mill and the new 9-in. high-speed strip mill, and between the blooming mill and the 16-in. hot mill at the company's Howard Avenue works. Taking 5 x 5-in. (or 4 x 4-in.) x 24-ft. blooms direct from the present 34-in. blooming mill at the steel works, it will in the same heat reduce these blooms to 1½-in. and 2-in. squares 20 ft. in length for the high-speed 9-in. mill. It will also supply 2 x 3½-in. billets in 10-ft. lengths for the company's Howard Avenue hot mills, as rolled from 5 x 6-in. blooms, and billets, slabs or bars as the market may require. The output of the mill will approximate 30 tons per working hour.

This mill will be located in a building 72 ft. wide by 120 ft. long running east and west on the north side of the present billet yard crane runway. A 10-ton overhead electric traveling crane will serve the mill. Space will be left for the future addition of a reheating furnace. At present it is planned to operate the mill directly in conjunction with the blooming mill, so that full reduction from blooms to bars can be accomplished on one heat.

Six stands of rolls, arranged in tandem with an overall distance of 91 ft. 4 in. between the first and last stands, will comprise the mill proper. Electric drive through suitable reducing gears is provided for. Two motors, one of 1000 hp. and one of 1400 hp., will drive the first two and the last four stands respectively. In emergencies, using shorter billets or greater intervals between billets, either motor can be arranged to drive the entire mill.

Power will enter the motors at a pressure of 2200 volts; current will be 3-phase, 60-cycle. Secondary reducing gears are to be installed on the first three stands, which operate at low speed. The finishing stands will deliver steel at 425 ft. per minute.

Conveyor Table

Blooms will be conveyed from the blooming mill shears to the first pass of the 22-in. mill by means of a conveyor table built in the form of a quadrant of a circle, so that the blooms are delivered to the mill at right angles to the direction in which they left the blooming mill. The runout table or bed will be approximately 200 ft. long, delivery to be made to the high-speed 9-in. strip mill, or for straightening in the Kane & Roache straightener located immediately adjacent to the transfer table.

High-Speed Strip Mill

Taking billets 1½ in. square x 20 ft. long, the new 9-in. high-speed strip mill will roll them into strips 1½ in. and wider by 0.028 in. thick and heavier. This mill is to be equipped also to roll rods and flats and other than strictly "strip" products. The tonnage output of the mill naturally will vary according to the sizes rolled. The average tonnage is expected to approximate 196 tons per day.

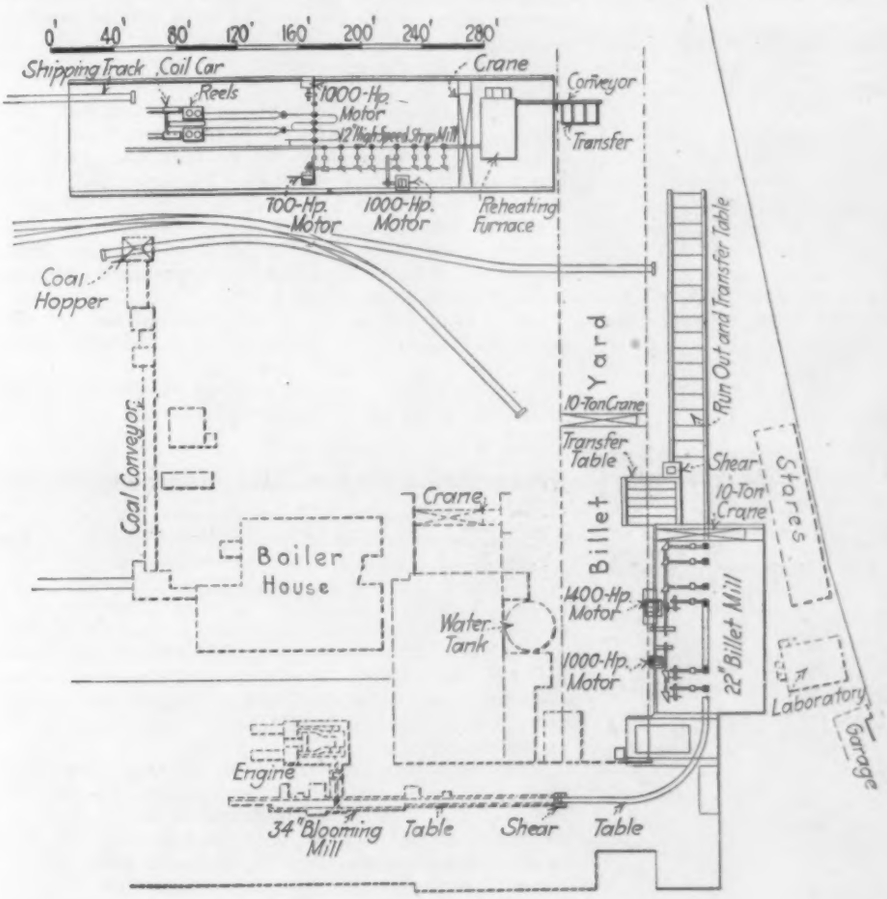
This mill will be located in a building situated at the west end of the present billet yard crane runway and will extend in a southerly direction parallel to the Yellow Mill Creek water front for 300 ft. The width of the building is 72 ft., the height to eaves, 30 ft.

An oil-fired reheating furnace 21 ft. wide and 35 ft.

long will be installed to handle billets 20 ft. in length. Billets stored under the present billet yard crane runway will be loaded onto a conveyor, which will in turn feed them endwise into the furnace through the north side of the charging end by means of pinch rolls located outside of the furnace. A short stroke pusher will push the billets through the furnace. At the discharge end pinch rolls will be located at either side of the furnace, one to assist in pushing and the other in drawing the billet.

A hot shear located close to the discharge pinch roll will permit recutting the billets in smaller lengths, as well as to cut test or set-up pieces.

Space exists for the future erection of two 10-ft. diameter gas producers, should at any time a transfer from oil to coal be found desirable.



In the Diagram the New Billet Mill at Right, Strip Mill at Top and Other New Equipment Are Shown With Solid Lines. Dotted lines show adjacent existing equipment. From the blooming mill shear, at bottom, 4-in. or 5-in. blooms pass along the curved table approaching the 22-in. continuous billet mill, where they are rolled to 1½-in. or 2-in. billets for use in the high-speed strip mill. The new mills are motor driven throughout, 5100 hp. in five motors being used for the main drives

Mill and Driving Layout

Twelve stands in all, eight arranged continuous and four arranged Belgian, will comprise the mill proper. Two sets of vertical edging passes are included in the continuous train. Steel rolls will be supplied for the continuous stands and chilled rolls for the Belgian stands, diameters ranging from 12 in. to 9 in. The delivery speed of the finishing rolls will be 1500 ft. per min.

Electric drive through suitable reduction gearing will be provided, a 1000-hp. motor driving the continuous train and the edging rolls, a 700-hp. motor the first two stands of the Belgian train, a 1000-hp. motor the last two stands of the Belgian train, all motors to be wound for 2200-volt, 60-cycle, 3-phase alternating current. The gears and drive will permit the addition of larger motors if, at a later date, the company desires to increase the width of the product of this mill.

It is proposed to provide a vibrating table for the material as delivered from the finishing rolls and to reel on horizontal reels, after which transfer will be effected to a moving table which will carry the coils about 20 ft. for loading onto trucks or removal by overhead crane. This runout table will be so made that it may be moved from the finishing pass to the No. 2 pass, when desired.

All narrow long strips requiring pickling will be treated in a continuous pickling machine located in the west side of the mill building.

Hot-rolled steel will be shipped at the south end of the building in standard gage cars, trackage for which into the building is provided to a distance of 50 ft. Facilities for yard trucks and customers' motor trucks will be provided also.

Producing a wide range of sizes and gages in small billets, slabs, strips, rods and similar products, the new mill will greatly improve the company's ability to serve its customers and to furnish a large diversity of steel products.

Production of steel barrels in 30 establishments is reported by the Department of Commerce to have amounted to 398,397 barrels in July, compared with 385,155 barrels in June from 29 establishments. There were shipped during the month 407,258 barrels, while the number on hand at the end of the month was 47,629. Unfilled orders at the end of July were 519,034 barrels, or much more than the 421,870 barrels at the end of June. These two figures, however, are the lowest of the year, the unfilled orders at the end of May having been 582,022 barrels, while each of the four preceding months showed unfilled orders exceeding 600,000 barrels.

The Public Service Production Co., 80 Park Place, Newark, N. J., is preparing details and will construct a new cement mill plant for the Bath Portland Cement Co. to be located at Sandts Eddy, Pa.

World Trade in Chromite

Trade information bulletin No. 252 of the Iron and Steel Division, Bureau of Foreign and Domestic Commerce, Washington, deals with the world production and distribution of chromite. In the 36 pages of the pamphlet is packed a wealth of detailed information regarding sources of supply, quantity of movement and history of prices. The United States is the largest consumer, our pre-war consumption having been about one-third of the world's total. In 1913 some 65,000 tons of chromite were used in the United States by manufacturers of ferrochrome and chrome chemicals. The consumption increased rapidly during the war until 130,000 tons were needed in 1918. Before the war England consumed about 25,000 tons per year, France 35,000 tons, Germany 30,000 tons, Russia 5000 tons and Austria 5000 tons.

Politically and commercially the three chief chromite producing regions of the world, Rhodesia, India and New Caledonia, are controlled by England and France. In 1918, the year of greatest world production, India furnished 58,697 metric tons, New Caledonia 55,177 tons and Rhodesia 28,382 tons. In 1922 Rhodesia took the lead with 94,969 tons, or more than half the total of 159,856 tons. India furnished 31,000 tons, New Caledonia 20,000 and Greece 10,000 tons. Rhodesian exports of chrome ore in 1922 amounted to 78,911 tons, of which 63,098 tons were sent to the United States, 6610 tons to Great Britain, 3920 tons to Germany, 3360 tons to Holland, 1019 tons to France and 904 tons to Belgium.

Automobile Production in July

Figures of the Department of Commerce show a recovery from the low figures in June in production of passenger cars, but a further slump in production of trucks. The number of passenger cars turned out is given as 237,652, compared with 217,943 (revised) for June, and with 297,413 for July of last year. Production of trucks was 25,224, compared with 27,874 in the previous month and with 30,692 in July of last year. The figure for trucks is the lowest for any month since February, 1923. Except for June, the figure for passenger cars is the lowest for any month since January, 1923.

For the seven months of the year already elapsed, production of passenger cars in 1924 has been 2,044,173, against corresponding figures for 1923 and 1922 of 2,128,369 and 1,261,671, respectively. For trucks, the seven-months output has aggregated 216,867, against 230,869 last year and 138,214 in the first seven months of 1922.

Refractories in July

Business in clay fire brick in July scored a moderate increase over that for June, according to the monthly report of the Refractories Manufacturers Association, but there was a slight loss in silica brick bookings in July as compared with the month before. Net new business in July in clay fire brick totaled 29,002,787 9-in. straights, this being equal to 57 per cent of economical monthly producing capacity of the manufacturers reporting. For June the figure was 24,742,857, or 47 per cent of the capacity embraced by the report. July shipments were 28,693,426 9-in. straights, or 57 per cent of capacity; June shipments were 30,020,305, also 57 per cent of capacity, this being due to the fact that less capacity reported for July than for June.

Net new business in silica brick in July was 4 per cent less than that for June, 2,550,130 against 2,795,586, capacity reporting being the same for both months. July shipments were heavier than those for June, indicating greater dependence for supplies on orders previously placed than on new purchases. The figures were 3,735,906 for July and 3,076,573 for June, 46 and 35 per cent, respectively, of capacity reporting.

Unfilled orders for silica brick at the end of July were 5,433,857, against 6,619,633 at the end of June; unfilled clay fire brick orders at the end of July were 41,787,145, against 41,961,410.

Great Progress in Standardization

There now exists the most widespread interest and activity in industrial standardization that has ever been shown, according to the new Year Book of the American Engineering Standards Committee. One hundred and fifty-two projects have been completed, or are under way, and in these various projects 235 national organizations, technical, industrial, governmental, are officially cooperating through accredited representatives. The number of individuals serving under various sectional committees of different projects is nearly 1100.

Cooperation in joint activities between Mr Hoover's Division of Simplified Practice and the American Engineering Standards Committee has steadily increased. In general the work of the committee is concentrated upon standardization projects which involve technical considerations, while the division of simplified practice concentrates upon such eliminations as it is possible to carry out from a consideration of statistical production data alone.

A new development is the appointment of local representatives of the committee in four important industrial centers. These are: K. F. Treschow, secretary Engineers Society of Western Pennsylvania, Pittsburgh; J. B. Babcock, executive secretary Affiliated Societies of Boston, Boston; Edgar S. Nethercut, secretary Western Society of Engineers, Chicago; Prof. George S. Wilson, Engineering Experiment Station, University of Washington, Seattle.

More than 140 national trade associations are officially participating in standardization projects under the auspices of the committee.

The Year Book may be secured by addressing the committee at 29 West Thirty-ninth Street, New York.

Recuperation in Hot Blast Stove Operation

The Sloss Sheffield Steel & Iron Co. has placed in operation in connection with hot blast stoves at its No. 5 furnace, at Sheffield, Ala., a recuperating device developed by J. P. Dovel, Birmingham. It consists in transferring heat from the waste gases leaving the blast furnace stoves to the cold air blast going to the stoves. A closed circuit is set up for the transfer of heat, heating the cold blast to 450 deg. or 500 deg. Fahr. The stove stack temperatures are kept at a predetermined point, which could be brought to the minimum by the use of forced draft.

The device consists essentially of a radiator built of cast iron pipe and bends of suitable size to present sufficient radiating surfaces to effect direct heat exchange from the waste gases to the cold air circuit, and of dimensions ample enough to present a minimum resistance to the blast. Placed in connection with the stove stack flues and cold blast main, a cross current effect is obtained that is designed to secure a high efficiency of heat exchange. It is held that a substantial saving in fuel is effected and a sufficient and uniform hot blast temperature is maintained with a less number of stoves than in the present practice; that the peak temperatures in the combustion chambers on the present stoves can be lowered, thereby prolonging the life of the stoves; and that a uniform draft can be maintained on the hot blast stoves, making possible proper regulation of the gas combustion. An important uniform operation of the furnace is emphasized as a natural result of this regulation of the hot blast and draft stack. A direct saving of a minimum 8.7 per cent of the total fuel used is claimed.

Lake Superior Ore Consumption

Consumption by furnaces during June and July of ore from Lake Superior is given by the Lake Superior Iron Ore Association at 2,793,203 gross tons in June and 2,415,300 tons in July, the latter comparing with 5,747,356 tons in July, 1923. Ore on hand at furnaces and at Lake Erie docks on Aug. 1 is given as 31,595,562 tons, compared with 27,503,482 tons one year ago. The total number of furnaces represented in the statistics is 330, including Canadian furnaces. Of this number 131 were in blast on June 30 and 118 on July 31.

FORM MILLER and THREAD HOBBER

High Production and Accuracy Claimed for New Two-Spindle Unit—Operation Automatic

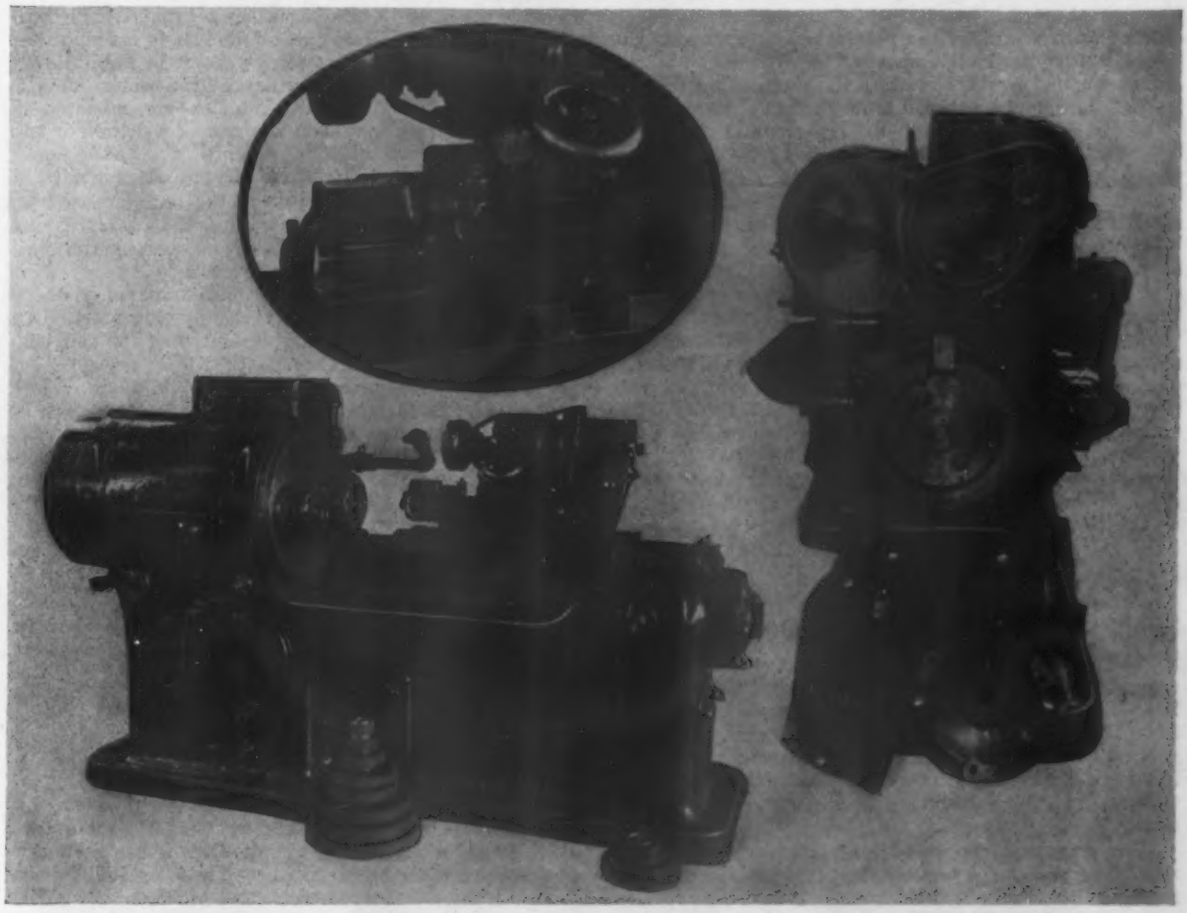
A two-spindle thread hobber and continuous form miller for high production thread hobbing and circular milling operations has been placed on the market by the Pratt & Whitney Co., Hartford. The machine may be equipped with a ring hob and suitable lead cam for threading, or it may be equipped with a formed or straight milling cutter without a lead cam for circular milling.

In this machine two horizontal work spindles are mounted 180 deg. apart in a large drum which is indexed automatically at regular intervals through one-half of a revolution. The cutter head carries a single cutter which is brought into engagement with the work carried by the rear work spindle. The rear work spindle is rotated slowly during the milling operation and for threading operations the cutter head is moved endwise by a lead cam to give the necessary lead to the thread. While the work in the rear spindle is being milled the operator unloads and loads the front spindle. When indexing takes place the blank is carried into the operative position at the rear and the finished work is brought to the front where it can be removed. Except for loading and unloading, operation of the machine is automatic.

Two separate motors are used to drive the machine, one of which is mounted on the cutter head for driving the cutter. The main drive is by a 2-hp. motor which is connected to the rear of the bed. This motor drives the work spindles, indexes the large drum, rotates the shaft which controls the lead and feed of the cutter, and drives the pump. Power is taken from the motor through gearing and silent chains. A sharp toothed gear is arranged to engage a similar gear on each work spindle, so that as the drum rotates one of the spindles into the cutting position it is meshed with this gear and rotated until the cut is finished and the drum indexes the other spindle into position. The work spindle rotation is controlled by 12 change gears, six changes of speed being available. On 1-in. diameter work the cutting speeds available are 2.36, 3.39, 5.75, 7.72, 11.46 and 16.96 in. per min. The capacity through the spindle is 2 in.

The work spindles are of steel, heat treated and ground. Both straight and taper bearing surfaces are provided on the spindle nose to accommodate the collet closing ring or special chucks. Two threaded portions are available, a fine pitch for special chucks and a coarse for the collet closing ring on standard equipment. The spindle thrust is taken at the front end of the spindle on a hardened and lapped steel washer, adjustment being made from the rear by threaded nuts. The drum which mounts the work spindles is indexed by means of a large worm and wheel. This is connected to the main drive through a friction clutch which is thrown in and out at the proper time by a cam. A positive automatic lock holds the drum in exact position at both indexing points. A further convenience is provided in a cam-operated pawl which releases the work in the work spindle as soon as a cut is finished. The indexing of the drum takes about 2 sec., which is the only time lost in the operation of the machine.

The 2-hp. motor on the cutter slide drives the hob through transposing gears. Cutter speeds of 355 and 485 r.p.m. are available. The compactness of the cutter



Two-Spindle Thread Hobber and Continuous Form Miller. The work spindles are mounted in a large drum and indexed automatically at regular intervals. The cutter head carries a single cutter which is brought into engagement with the work carried on the rear spindle. While the work is being milled, the operator unloads and loads the front spindle

head, with no power connection with the rest of the machine, is a feature. The cutter spindle is of special steel hardened, ground and lapped, and runs in hardened, ground and lapped steel bushings inserted in the cutter head. The hole in the spindle is No. 9 B. & S. The cutter head is mounted on a slide which is pivoted to permit adjustment of the head for any slight taper in the work due to inaccurate grinding of the hob. This cross slide is operated by a small handwheel permitting the hob to be set for depth, and a dial indicator is provided to facilitate accurate setting.

The cross slide upon which the cutter head is mounted is mounted in turn upon a longitudinal slide as shown. When the machine is used for threading, this slide is actuated by a cam follower which is in continual contact with a lead cam situated in the right-hand end of the bed. The lead cam consists of a cast-iron core and a hardened and ground lead ring which is removable and which must be changed for each different pitch. Under the action of the lead cam the entire cutter head slide moves longitudinally the required amount corresponding to the pitch being hobbed, so that the complete thread is finished in one revolution of the work. In addition to the longitudinal movement of the cutter head, another camming device advances the cutter head to full depth of thread. At the proper time the cutter is released and backed away by spring tension to allow for indexing of the drum. Thus the hob is fed longitudinally during the cut, is backed away from the work, returns through the pitch distance traveled while cutting, and moves in again to depth after the next piece of work has arrived in position. When the machine is being used for circular milling, the movement which produces the lead of the thread is eliminated and the longitudinal slide locked. In this case the cutter is only fed to depth by the cross slide action and returned before the drum indexes.

This machine is designed for high-speed steel cutters and hobs, the minimum diameter of the latter being 3 in. When an exceptionally long cut is necessary the cutter is mounted in a double support. No outboard support is required for cuts up to 1¾ in. long. For long work and for work which does not adapt itself to chucking, the machine may be fitted with tailstocks. The work spindles may be equipped with air chucks if desired, which facilitates loading.

Lubrication is from centralized oil reservoirs and by the splash method. Large oil cups are provided for the cutter spindle. The coolant is pumped to a large tank situated at the highest point of the machine and from there it flows by gravity to the cutter. The chip pin is designed so that the cutting fluid carries the chips down into an accessible chip or settling box inside the bed.

Unusually rigid construction is particularly emphasized by the makers, the time and labor saving characteristics of the machine being also stressed. The indexing is held accurately by the positive lock previously mentioned, and the radial positions of the two spindles are held to close accuracy so that trouble will not be experienced from this source. It is claimed that even if slight inaccuracies were present in the indexing it would not affect the accuracy of the work. This is said to be because the two spindles are mounted in such a large drum that even an error of a degree or two will not be appreciable in the depth of cut, this error being the difference in length of the two sides of a right triangle whose opposite angle is the angular error in indexing. When used for threading, the use of a ring hob and lead cam are claimed to assure the best combination for accuracy. Convenience of operation has been given attention. Push button control has been installed for the motors and electrical protection is provided. Adjustments are accessible and the few controls are within easy reach.

The maximum swing over the bed is 10 in. Work up to 10 in. in diameter not requiring centers may be chucked to good advantage. The length between centers using the tailstocks is 18 in. The floor space occupied by the machine is 4 ft. 4 in. by 8 ft. 2 in. without air chucks. The length with air chuck is 9 ft. 2 in. The height of the machine is 5 ft.

Bethlehem to Build $2,000,000 Dry Dock

The Bethlehem Shipbuilding Corporation, which recently acquired the Simpson Patent Dry Dock Co., East Boston, has perfected plans for the construction of a $2,000,000 500-ft. pile and concrete pier adjoining the new plant acquisition, which is to be used as a mooring for the dry dock. The dry dock is of the Donnelly type, 480 ft. long, having a lifting capacity of 10,000 tons.

The company has closed contracts with the Argentine Government for a general overhauling of the battleships Rivadavia and Moreno. The work will be done at the Fore River, Quincy, Mass., plant, and will start about Sept. 1. In addition, negotiations are completed whereby two turbo-generators building for the New York Shipbuilding Corporation at the General Electric Co.'s Schenectady plant will be placed in the airplane carrier Lexington, at the Fore River plant.

Foundry Equipment Business

An indication of activity among foundries to improve their equipment is given by the following list of installations, now in various degrees of progress, being made by the W. W. Sly Mfg. Co., Cleveland:

Sand blast mill in the plants of the Gale Mfg. Co., Albion, Mich., and the Chicago Bearing Metal Co.; sand drying for the Jewell Steel & Malleable Co., San Francisco; core sand reclaiming equipment for Frazer & Jones, Syracuse, N. Y.; tumbling mill equipment for Erie Stove & Mfg. Co., Erie, Pa.; Frazer & Jones Co., Syracuse, N. Y.; Trenton Malleable Iron Co., Trenton, N. J.; Brandes Products Corporation, Newark, N. J.; Vulcan Iron Works, Wilkes-Barre, Pa.; Hart & Crouse Co., Utica, N. Y.; Whitin Machine Works, Whitinsville, Mass., and Taylor & Co., Inc., Brooklyn, N. Y.; and dust arrester equipment for Weir Stove Co., Taunton, Mass.; General Electric Co., Erie, Pa.; Gale Mfg. Co., Albion, Mich.; Asbestos Shingle Co., Nashua, N. H.; Vulcan Iron Works, Wilkes-Barre, Pa., and Pittsburgh Malleable Iron Co., Pittsburgh.

Gisholt Plant at Warren, Pa., Sold

The plant of the Gisholt Machine Co., Warren, Pa., has been formerly taken over by Herbert Onions and H. S. Rapp, both of Warren. Mr. Onions has been general manager of the plant since it was erected twenty years ago by the Turret Lathe Co., Madison, Wis. The plant is one of the best equipped machine shops in the vicinity and of recent years has been specializing in the manufacture of flexible couplings.

Ore Company Organized in Oregon

A group of Portland, Ore., capitalists have organized the Oregon Iron Ore Development Corporation, which has acquired title to 383 acres of ore lands in Columbia county, Ore., with a view to developing this ore property. Portland newspapers indicate that the plans of the corporation include the possible construction of a blast furnace and steel plant, but the intimation is given that financing is to be done before such construction is undertaken.

Civil service examinations are announced for metallurgists and associate and assistant metallurgists in the Bureau of Mines at entrance salaries of $3,800, $3,000 and $2,400 a year, with later advancement to a maximum of $5,000, $3,600 and $3,000 respectively. Applicants, who must be college graduates, may obtain full information and blanks from the Civil Service Commission, Washington, or the Civil Service Secretary at any postoffice or custom house.

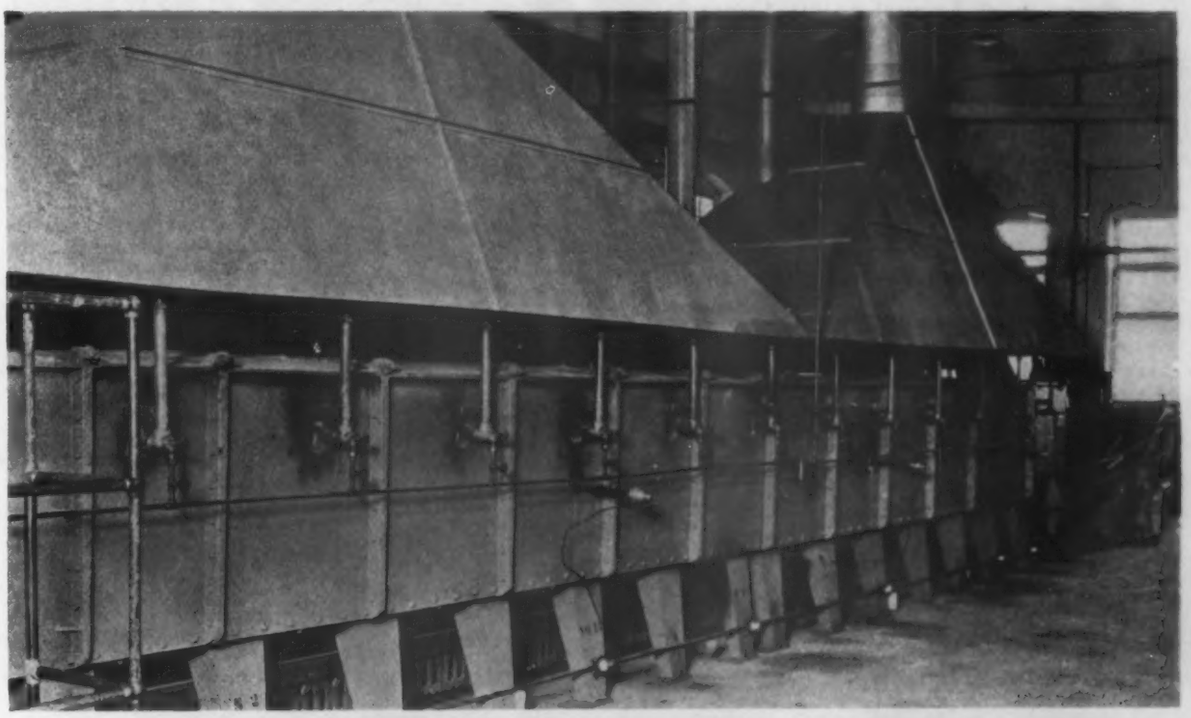
NEW HEAT TREATING FURNACES

Continuous Overfired Units with 23 Burners for Each Furnace Installed in Axle Plant

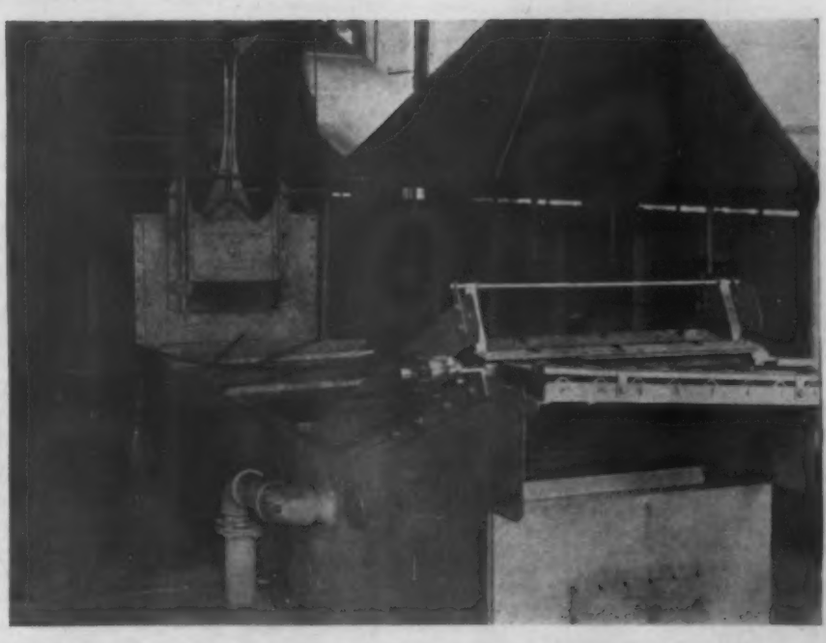
Continuous overfired heat treating furnaces of new design, installed recently in the plant of the Adams Axle Co., Inc., Syracuse, N. Y., for hardening and drawing alloy steel rear axle shafts for automobiles, are shown in the accompanying illustrations. There are two of these furnaces, located side by side, similar in design and practically duplicates so that in an emergency either furnace may be used temporarily for both hardening and drawing.

The furnaces are 40 ft. long and have hearths 3 ft. wide. Work is carried through the furnace on two rows of carrier blades of Nichrome alloy steel. These blades, which are on 15-in. centers, are riveted to a double roll chain. A chain of this type is used, as it gives good support so that the blade will stand straight and it also provides a roll effect during the entire cycle except when the blades are passing over the sprockets at either end of the furnace. The chain is kept taut by gravity take-up blocks attached to the charging table. The conveyor blades project through two slots in the table at the charging end of the hardening furnace and extend 2½ to 3 in. above the hearth. The top of the blades, which are 8 in. long, are notched to take three axle shafts. With this spacing the shafts move along the hearth 2 2/3 in. apart, or 4½ to a lineal foot. The conveyor is operated at a speed of 1 ft. per min., so that the capacity of the furnace is 4½ axle shafts a minute.

The work is placed on the conveyor blades by hand. At the discharge end of the furnace the shafts slide by gravity to a quenching tank 4 ft. wide, 4 ft. deep and 15 ft. long. The conveyor in this tank, driven from the furnace drive shaft, carries the shafts from the tank at an angle and discharges them to a gravity transfer table which delivers them on to the charging table of the drawing furnace. Here the work passes over inclined rolls onto the furnace table. The shafts



Continuous Heat-Treating Furnace at the Plant of the Adams Axle Co., Inc., for Hardening and Drawing Automobile Axles. Work is discharged from the hardening furnace at the left into a quenching tank and from this tank a conveyor and gravity transfer table deliver it to the drawing furnace at the right



The Furnace Is of the Overfired Type With Twenty-Three Oil Burners Placed on Approximately 2 Ft. Centers. Uniform distribution of heat is a feature. This illustration shows the hardening furnace looking toward the discharge end

pass by gravity at the discharge end of the drawing furnace into a water cooling tank. The only purpose of this cooling tank is to reduce the temperature of the shafts sufficiently so that they can be handled immediately for the next operation. As high heat resisting metal is not required in the drawing furnace because of the lower temperature the conveyor blades in this furnace are of ordinary cast steel.

Each furnace is built up of two portable cast iron sections 20 ft. long and is mounted on cast iron legs. The furnaces are oil fired and one of the interesting features is the large number of burners, each furnace having 23 standard low-pressure oil burners placed on approximately 2-ft. centers. This number of burners is provided in order to secure an even distribution of heat. It is stated that the temperature is maintained within 10 to 15 deg. the full length of the furnace and that the temperature is up to approximately the maximum at the furnace entrance. The same number of burners are provided on the drawing furnace as in the hardening furnace so that in an emergency it can be used for hardening operations, but for drawing only one-half of the burners are lighted. A temperature of approximately 1675 deg. Fahr. is maintained in the hardening chamber and 1100 deg. in the drawing chamber. The furnaces are provided with thermocouples connected to Leeds & Northrop temperature indicating instruments. Two hoods are provided over each furnace, as shown in the illustrations, for carrying away the heat.

The conveyors are motor driven through a Reeves variable-speed unit and a worm-gear reducing unit and gears and pinions connecting to the driving shaft on which the chain sprockets are mounted. At the charging end there is an idler shaft and sprockets. A speed range of from 5 in. to 25 in. per min. is provided for the conveyor, but the usual operating speed is 12 in. per min.

The furnaces were designed and built by the Strong, Carlisle & Hammond Co., Cleveland.

Program of Annual Safety Congress

The program of the Annual Safety Congress of the National Safety Council to be held at Louisville, Ky., Sept. 29 to Oct. 3, inclusive, has been completed. There will be five general sessions, three luncheon meetings and 24 sectional conferences, as well as entertainment features, including the annual banquet. The meetings will be held in the Brown Hotel and Hotel Seelbach.

Speakers at the first general meeting include Hon. James J. Davis, Secretary of Labor, whose subject will be "Fundamentals of Our Industrial Safety Problems"; C. F. Kettering, vice-president and chief engineer General Motors Research Corporation, Dayton, Ohio, whose subject will be the "Public Safety Problem," and A. W. Whitney, chairman American Engineering Standards Committee, and associate general manager and actuary, National Bureau of Casualty and Surety Underwriters, New York, who will talk on standardization of safety codes. A motion picture will be exhibited, showing the National Safety Council's new industrial film entitled "A Word to the Wise." Hon. Herbert Hoover, Secretary of Commerce, will be the principal speaker at the annual banquet, which will be held Thursday evening, Oct. 2, in the ballroom of the Brown Hotel. B. F. Affleck, president the Universal Portland Cement Co., Chicago, will deliver an address on safety from the executive's point of view at the cement sectional meeting, Wednesday morning, Oct. 1.

Among the numerous papers in the comprehensive program provided the following list may be mentioned:

Construction, Operation and Maintenance of Overhead Electric Traveling Cranes, by W. S. Hall, Illinois Steel Co., South Chicago.

Safe Operation and Use of Crane Chains, by A. V. deForest, research engineer, American Chain Co., Bridgeport, Conn.

Protective Devices and Clothing for Foundry Workmen, by W. E. Watters, National Malleable & Steel Castings Co., Melrose Park, Ill.

Safe Handling and Use of Cutting and Welding Gases, by H. F. Smith, Union Carbide & Carbon Corporation, New York, and G. O. Carter, Linde Air Products Co., New York.

Industrial Health as a Purchasable Commodity, by C. F. N. Schram, M.D., medical director, Fairbanks, Morse & Co., Beloit, Wis.

The Fatigue Problem in Industry, by Mrs. Frank B. Gilbreth, Montclair, N. J.

Health Education of Our Foreign Families, by A. W. Colcord, M.D., Carnegie Steel Co., Clairton, Pa.

Accident Records and How To Keep Them, by C. B. Auel, Westinghouse Electric & Mfg. Co., Pittsburgh.

Educating the Workman, by H. O. Houze, personal manager, National Malleable & Steel Castings Co., Cleveland.

Punch Presses and Dies, Their Safe Construction and Operation, by George S. Thompson, Royal Indemnity Co., Detroit.

New Specifications for Guards In the Power Press Code, by C. B. Auel, Westinghouse Electric & Mfg. Co., Pittsburgh.

Plant Housekeeping, by J. J. Stunzi, Lancaster Steel Products, Lancaster, Pa.

Should the Management Have Anything to Say In the Running of a Mutual Benefit Association, by J. E. Culliney, safety engineer, Bethlehem Steel Co., Bethlehem, Pa.

Should Physical Examination Be Compulsory to the Members of a Mutual Benefit Association? by Albert B. Tenney, president Malden Electric Co., Malden, Mass.

COMING MEETINGS

September

Iron and Steel Institute. Sept. 4 and 5. Fall meeting, British Empire exhibition at Wembley, England. George C. Lloyd, 28 Victoria Street, London, S. W. 1, England.

Institute of Metals. Sept. 8 to 11. Autumn meeting in London. G. Shaw Scott, 36, Victoria Street, London, S. W. I. England, secretary.

National Sheet Metalware Association. Sept. 9 and 10. Annual meeting, Hotel Statler, Buffalo, N. Y.

American Society of Mechanical Engineers. Sept. 15 to 18. Machine tool exhibit, Mason Laboratory, Sheffield Scientific School, Yale University, New Haven, Conn. For catalog and tickets, address Prof. S. W. Dudley, 400 Temple Street, New Haven, Conn.

American Society for Steel Treating. Sept. 22 to 26. Annual convention and exhibition. Headquarters, Copley-Plaza Hotel; exhibition. Commonwealth Pier, Boston. W. H. Eisenmann, 4600 Prospect Avenue, Cleveland, secretary.

American Mining Congress. Sept. 29 to Oct. 4. Annual convention, Sacramento, Cal. J. F. Callbreath, 814 Munsey Building, Washington, secretary.

New England Foundrymen Visit Narragansett Points

Instead of the customary August meeting in Boston, the New England Foundrymen's Association on Aug. 20 was the guest of the Providence Gas Co., Providence, R. I. A large number of association members and guests accepted the company's invitation.

The visitors embarked at Dyer Street Wharf on the steamer Mineola about 10 o'clock in the morning. The steamer proceeded to the Sassafras Point Works of the gas company, where an inspection was made of the by-product coke plant. Later in the morning the guests sailed down Narragansett Bay to Newport, R. I., first stopping at Gould Island, where an exhibition of torpedo firing was given. At Newport the party witnessed a drill by the middies, and quite a number took the opportunity to inspect the Torpedo and Naval Training Station.

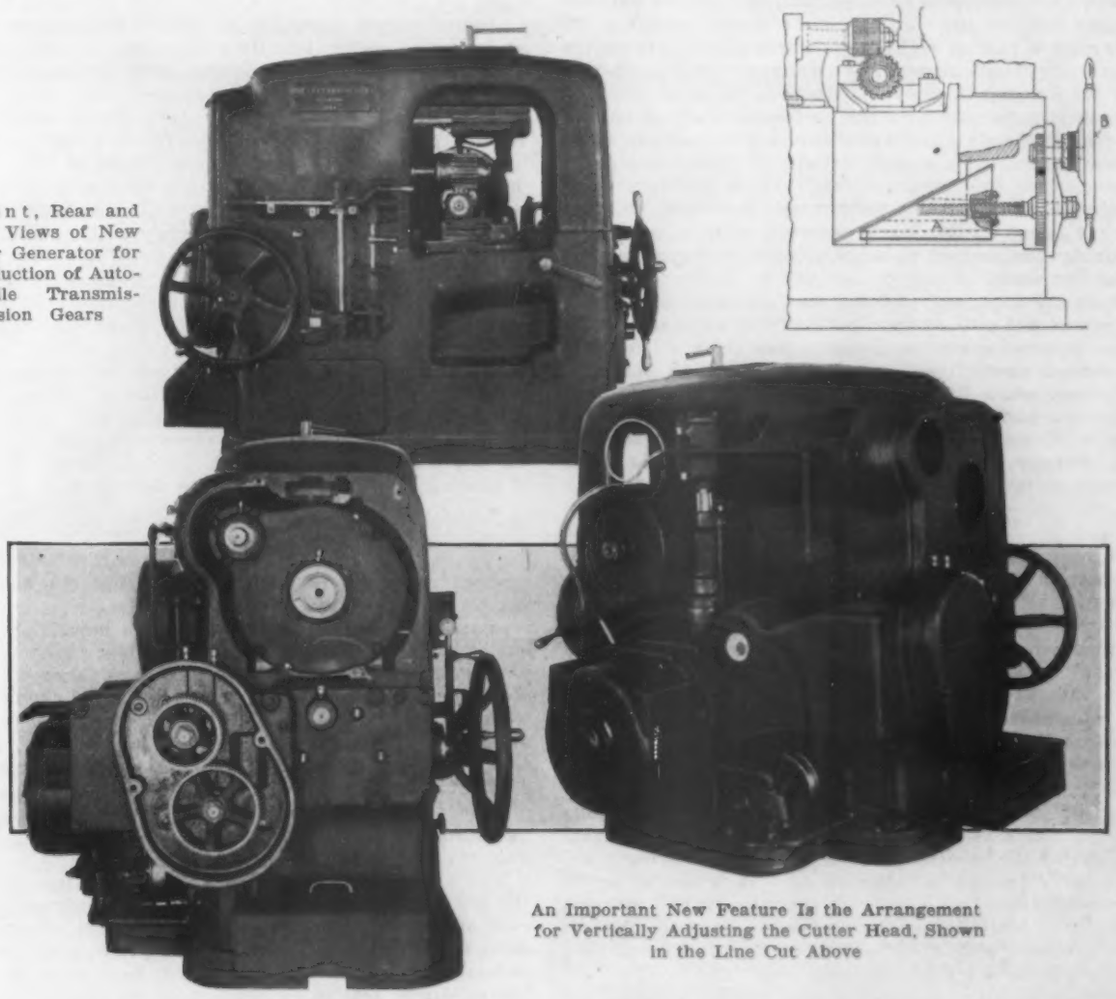
Upon the return to Providence the members were the guests of the company at a banquet at the new Providence-Biltmore Hotel. The association transacted no official business. W. G. Rich, manager coke sales, Providence Gas Co., was in charge of arrangements.

NEW GEAR GENERATOR

Single-Purpose Machine for Production of Automobile Transmission Gears

A new single-purpose gear generator designed primarily for the quantity production of automobile transmission gears and an outstanding feature of which is the provision for extreme rigidity has been brought out by the Lees-Bradner Co., Cleveland.

The machine, which is designated as the No. 2, is termed a "single-purpose" because of the limited class of work handled rather than because of any limitation on the number of teeth cut or on the thread angle and diameter of hobs. In accordance with the company's previous practice, the work is fed past the hob The relative movements and positions of the spindles are similar to other of the company's gear hobbers, but the surrounding housing is of entirely different design and the gear train between the hob and the work has been very much simplified.



Front, Rear and End Views of New Gear Generator for Production of Automobile Transmission Gears

An Important New Feature Is the Arrangement for Vertically Adjusting the Cutter Head, Shown in the Line Cut Above

The outstanding feature of the housing is that it surrounds the hob and the work completely, an arrangement intended to avoid overhang and to provide an additional bearing for the work-slide against the top of the housing, as may be seen in the illustration of the rear end with cover plate removed. An unusually large tapered gib is placed between the work-slide and the top of the housing for taking up play. The work spindle is gibbed to the base of the machine, as shown in the rear-end illustration, and has liberal bearings and tapered gib (not shown) as an additional provision against side movement. The work spindle is not adjustable up and down, having only the longitudinal travel for feed and return. Varying diameters of work are accommodated by vertical adjustment of the support which carries the hob spindle, thus varying the distance between the hob spindle and work spindle.

An important new feature is the arrangement for vertically adjusting the cutter head. Instead of employing a vertical screw for raising and lowering the support, the large wedge-shaped casting shown at *A* in the accompanying line sketch illustration is moved horizontally upon the bed of the machine, below the support to raise it and adjust the hob to the proper depth. The cutter head is thus resting upon a solid foundation of cast iron of which the heavy bed casting is a part. The adjusting wedge is moved horizontally by means of the large pilot-type hand wheel shown at the front end of the machine. When the hob has been adjusted to the proper depth, the support which carries the hob is clamped to the machine bed by a convenient lever.

The cutter head carrying the hob spindle is of heavy one-piece design instead of the usual swivel head. The machine being intended for cutting spur gears only, having the hob spindle arranged to swivel through a large number of degrees is unnecessary. The small amount of angular adjustment required to accommodate hobs of such thread angles as are used for this class of production is obtained in a different manner. The cutter head is bolted directly to its support, and to change to hobs of a different thread angle these bolts are loosened and the head is swung about the axis of the vertical shaft which carries the power to the hob spindle. This permits adjustment of the hob spindle through an angle of 10 deg. Left-hand hobs not being used on spur gear production, this adjustment is all on one side of center, permitting the use of right-hand hobs of any thread angle up to 10 deg. This includes spline hobs and single-, double- or triple-thread hobs of pitches used for the production of automobile transmission gears.

The hob spindle drive is through a heavy worm

gear similar to the worm gear drives employed in motor truck axles. A large bronze worm wheel on the hob spindle is driven by a worm on the vertical shaft shown adjacent to the fly wheel in the rear side and rear end illustration. This worm is splined upon the vertical shaft to allow for vertical adjustment of the cutter head. The worm gear driving the hob and work spindle are lubricated by a continuous flow of oil. The machine is equipped with two pumps and two circulating systems, one for lubricating oil and one for the coolant.

From the horizontal pulley shaft power is transmitted to the vertical shaft shown next to flywheel in the rear side and rear end illustration through a pair of miter gears. The drive from this vertical shaft to the hob spindle has been explained. On the extreme upper end of the vertical shaft power is taken off through a pair of right-angle worm gears to drive the horizontal shaft shown near the upper left-hand corner of the housing in the illustration of the rear end with cover plate removed. This horizontal shaft is splined to carry a spur gear which drives a large spur index gear on the work spindle. Both of these spur gears are carried by the work slide. There are only three pairs of gears between the hob and the work, all other gears being for auxiliary purposes and not for maintaining the correct relative velocity between the hob and the work.

In the illustration of the rear end with cover plate removed the pair of spur gears which are exposed are the change gears controlling the feed. They are mounted upon fixed centers so that both must be changed when it is required to vary the feed. The machine has no change gear train, but there are two pairs of gears to be changed in making a new set up, namely the feed gears and the right-angle worm gears at the top of the vertical shaft. The latter are changed when it is required to cut a different number of teeth or to change the number of threads in the hob. They control the ratio between hob and work rotation.

It has been found desirable to provide for easy changes of set-up to different numbers of teeth, to different feeds and to different hobs, these features being incorporated in order to permit each machine in a plant to be operated at a suitable speed and with a suitable hob diameter for its job, without destroying the standardization of machines in the plant. When a change of design calls for a different number of teeth or when deliveries on hobs necessitate going to a different diameter, the machine adapts itself to these conditions.

Improvements intended to facilitate changing the work and to reduce idle time have been incorporated. In addition to power quick-return, power quick-approach for starting the cut has been provided. The convenient location of control levers has been given attention. Where the machine can be used with a pull feed a further saving on idle time is accomplished by reversing the direction of feed so that the operator after putting on the new blanks has nothing to do but pull the starting lever. The cut starts immediately without even the quick-approach movement.

The machine is said to have been designed to anticipate improved high-speed steels and improved hobs capable of standing higher cutting speeds and heavier feeds. It is claimed, however, that even with existing hobs it is possible to cut more gears per sharpening and to get more sharpenings in the life of a hob. This is attributed to housing employed which surrounds both work and hob, holding them together rigidly so that the hob teeth take a clean bite into the metal instead of skating over the surface before digging in.

BETTER BUSINESS TONE SEEN

Purchasing Agents Believe August Will Record Beginning of Upward Swing

Business during July remained on even keel with June. The downward trend of business has run its course and the turn has been made.

Based on the National Association of Purchasing Agents' survey of coal consumed for industrial purposes, business as a whole was on about the same basis for the months of June and July, showing a decrease of 1½ per cent during July as compared to the preceding month. Taking into consideration the cessation of activities on Independence Day, observed in many cases with a suspension of two full days, then July will show a slight increase over June.

Figures on consumption and stocks of coal are drawn from data supplied from all parts of the United States and Canada by commercial consumers of coal, and represent all lines and branches of business and industry. The production of coal is from the United States Geological Survey.

Both bituminous and anthracite coal are covered, including total stocks in the hands of commercial consumers, total tonnage consumed and total production by months. Coal consumed for industrial heating and that consumed by the householder and his stocks are not included.

	Total Production, Net Tons	Estimated Industrial Consumption	Estimated Industrial Stocks on Hand, End of Month
March	48,713,000	40,782,000	72,192,000
April	36,364,000	36,696,000	63,403,000
May	39,217,000	31,693,000	57,428,000
June	37,918,000	30,327,000	54,225,000
July	39,800,000	29,887,000	53,572,000

Of the June production, 32,025,000 tons were soft coal and 7,775,000 tons were hard coal. Coal consumed during July for heating industrial buildings was 186,000 net tons. July production of bituminous coal increased 1,776,000 net tons over the June output. Industrial consumption during July decreased 440,000 net tons. Industrial stocks were reduced approximately 653,000 net tons during July.

Based on the July consumption the industrial consumer had in his bins on Aug. 1 sufficient coal to meet his requirements for a period of 55 days. Present coal stocks in consumers' bins under more normal conditions would be considered low. When figured against the January consumption, a fairly active month, the industrial consumer had in his bins on Aug. 1 on this basis coal sufficient for 39 days.

The barometer indicates that the business course has turned upward and that August will show a fair gain over July. With the revival of business will come a heavier demand for coal, and as the stocking of coal for next winter's consumption has been deferred, and coal stocks in consumers' bins have been drawn on from month to month until they are now much below normal, a large tonnage of coal will have to be moved before winter sets in.

As the fall months are usually the peak months of transportation, it will be seen that the railroads will be called upon to handle tonnages that may tax their facilities, and that considerable of this tonnage will be coal and will come at the time of peak demand on transportation, unless a considerable portion of the coal for next winter's use is put into the consumers' bins promptly. At present coal prices are low and the railroads have much idle equipment. The present, therefore, seems the opportune time to place coal in storage.

Coke

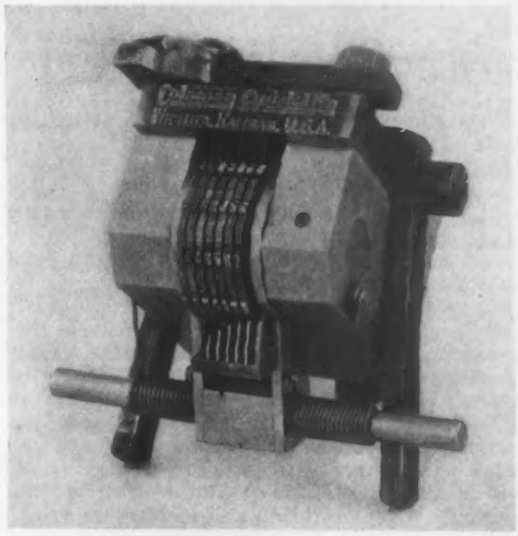
There is a more hopeful attitude among coke operators. Spot business, however, is light. The quantity produced in July was 2,818,000 net tons, of which 2,352,000 tons were from by-product ovens and 466,000 tons from beehive ovens, decreases from June of 3 per cent and 16 per cent respectively. The present monthly rate of output at by-product coke plants is 25 per cent below the average for 1923, and is at the lowest level reached since early in 1922. Activity at the beehive ovens continued to decline steadily through the month.

To produce the coke manufactured in July required the carbonization of 4,114,000 net tons of bituminous coal.

Numbering and Marking Cylindrical Parts in One Operation

A device for use in numbering on cylindrical parts, as well as marking names, trademarks, etc., on these parts at the same operation, has been brought out by the Noble & Westbrook Mfg. Co., Hartford.

The component parts of the device, which is used in connection with the company's marking machine, may be noted from the accompanying illustration. The operation is simple; parts rotate on a suitable holding fixture on the table of the marking machine and are carried, marked, and numbered by the device illustrated,



Device for Use in Marking Machine for Numbering and Marking Names on Cylindrical Parts

which is said to make a clear impression and number on cylindrical surfaces quickly and accurately. For ordinary changing of the numbers a hand lever on the device may be depressed, this giving automatically the next higher number. In the device as illustrated, however, a lever has been added that operates by striking on a fixed point of the holding fixture, on the table of the marking machine. After the marking operation is completed this lever advances the numbering device to the next higher number.

For serial numbering on lamp stands, gun barrels, and similar cylindrical surfaces, as well as marking names, trademarks, etc., at the same time, the new device is claimed to permit of reducing costs.

Wire for Philadelphia-Camden Bridge

Some 25,000 miles of wire, or enough to girdle the globe, will be used in the two cables supporting the world's longest suspension bridge now being erected across the Delaware river to link Philadelphia and Camden, N. J. The wire, of 0.192 in. diameter, by test has a tensile strength of 223,000 lb. per sq. in., and after assembly into the cables it will hold at anchorages against a pull of 18,000 tons. It is being made at Monessen, Pa., mills of the Page Steel & Wire Co.

The total length of the Delaware River bridge, including plazas, is 9760 ft., as compared with the 5989-ft. length of the Brooklyn Bridge. The main span of the Delaware River bridge is 1750 ft. The river span of the Brooklyn Bridge is 1595.5 ft. long. Four cables, 15.5 in. in diameter, are used to support the Brooklyn span, while only two 29⅞ in. in diameter will be used to hold up the Delaware span. Each of the two Delaware Bridge cables, after assembly in the field, will be 3550 ft. long, with a sectional area of 562 sq. in. Each will weigh 3500 net tons, and be comprised of 61 strands of 306 wires each, or 18,666 wires per cable.

On completion the bridge will include a vehicle traffic way 57 ft. wide, which will have a capacity of 6000 vehicles per hour, four rapid transit lines and two 10-ft. sidewalks for pedestrians, and it is this load that the cables must hold by means of the 310 suspender ropes which will connect them with the span.

Before each wire is galvanized with zinc the wire is required to measure 0.192 in. in diameter, and this must not vary more than 0.003 in. It must coil cold around a rod one and one-half times its size without sign of fracture. The galvanized coating is not allowed to vary from 0.003 in. in thickness, and after it is applied the wire is again tested by being bent cold around a mandrel 2 in. in diameter without cracking the zinc coating. Before shipping the wires are spliced into 80,000-ft. lengths, with sleeve-joints that have right and left-hand threads. The wire is being shipped to Camden, N. J., in this form at the rate of 40 tons daily.

Largest Upsetting Forging Machine

What is claimed to be the largest upsetting forging machine ever made is being built by the Ajax Mfg. Co., Cleveland, for installation in the new tube mill plant of the National Tube Co., Gary, Ind. The machine is of special design and will be used for upsetting the ends of seamless steel tubing.

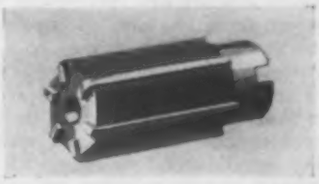
The overall length of the machine assembled is 27 ft. and the width of the bed proper is limited to 10 ft. 5 in. by shipping restriction. Computations place the total weight at 310,000 lb. The steel bed casting alone weighs 165,000 lb. The machine will have two fly wheels 7 ft. in diameter with 15-in. face and weighing 10,000 lb. each. The machine will accommodate dies 16-in. thick, 36-in. long and 36-in. high, weighing about 5700 lb. each. It will be driven by a 100 hp. motor.

Offers New Line of Reamers

A new reamer, which because of comparatively low cost of manufacture is claimed to save users from 25 to 50 per cent of their reaming costs, has been placed on the market by the Conradson Tool Corporation, 2539 Woodward Avenue, Detroit.

The manufacture of the reamer represents a departure from the usual method as far as tool making is concerned, and is said to be the first time that die casting has been attempted in this particular field. The usual method of making reamers is to cut them from a solid block of steel, or to mill the body from steel and insert high-speed steel blades either by a series of screws or by a brazing process.

The body of the reamer illustrated is of a tough hard alloy having a tensile strength of 50,000 lb., and said to have the physical properties of machine steel. This metal has a melting point far below the drawing point of the high speed blades, which are cast in place. The blades extend 3/32 in. below the body of the reamer to permit a clean facing of the bottom of the hole being reamed. The hole in the reamer is standard, permitting



The Body Is of a Tough Alloy and the Blades of High-Speed Steel

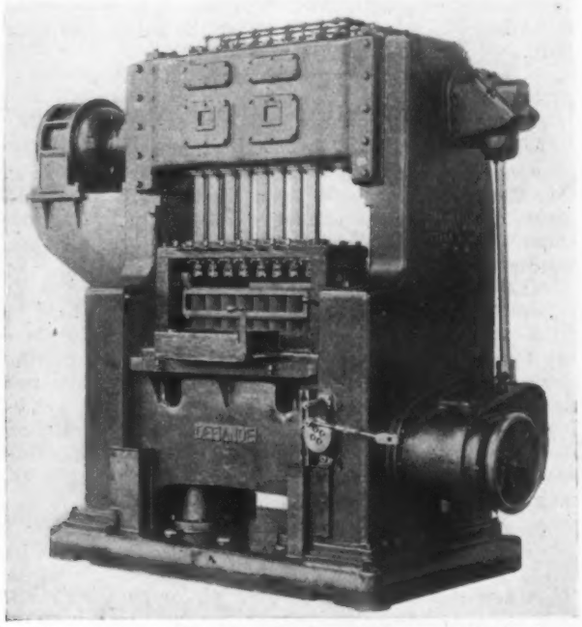
the use of standard arbors. The reamer will be manufactured in all sizes and types, shell and chucking, from 1 to 5 in. inclusive, although at present only 1 3/16 to 1¼ in. tools are available. Other sizes will be offered as soon as the necessary die equipment is completed.

The Chicago Pneumatic Tool Co. has entered into an agreement with the Schurs Oil Burner Co., Los Angeles, Cal., whereby it has become United States distributers for Schurs oil burners for the brick, tile, sewer pipe and potteries industries. The Chicago company will carry burner stocks at 17 branch service stations.

Eight-Spindle Cylinder Boring Machine for Production Work

An eight-spindle fixed-center cylinder boring machine designated as the No. 8 and intended for production work has been brought out by the Defiance Machine Works, Defiance, Ohio.

The machine is a single purpose unit adapted for rough boring and semi-finishing or reaming gas engine cylinders of any number of bores, cast en bloc or single and it is stated that its capacity is from 15 to 25 blocks



Single Purpose Machine for Rough Boring and Semi-Finishing or Reaming Gas Engine Cylinders

an hour. The first machines of this type have been installed recently in a Detroit automobile plant for boring and reaming straight line eight cylinder motors.

Rigid construction to prevent straining and chatter of the cutters and to assure the boring of a true, smooth hole, is a feature. The frame and base castings are broad and heavy with cored centers and have ribs inside. They have broad and long slides that are scraped and gibbed. The feed mechanism is of unit construction, affording easy access. It is tightly incased and lubrication is by means of the splash system. All feed shaft bearings are bronze bushed, and end thrust is taken by ball bearings. Feed changes are made by removing a gear case cover and changing two gears. A hand adjustment for the table is provided, but when the machine is in operation the table automatically feeds the work to the boring tools, and when through the cut it automatically reverses to a fast travel, returns to its loading position and stops, until engaged to bore the next cylinder.

The spindles are driven by belt from a three-step cone pulley, or from a motor connected with flexible coupling direct to drive shaft. To reduce torque in the drive mechanism, a large tongue drive is used which is cut integral with the spindles and meshes with a groove in the worm gears. The drive construction is located close to the spindle nose where the cutting is done, in order to insure a smooth powerful drive and to eliminate chatter to the cutting and reaming tools. The spindles are of large diameter and made of high grade hammered stock, each supported by three bronze bearings. The nose bearing is conical shaped and has a convenient means of adjustment for taking up wear. Each spindle floats between two sets of ball bearings which receive all end thrust and minimize friction. The momentum of the spindles may be instantly arrested after the power is shut off, by means of a friction brake located close to the operator. The boring tool is fitted to the spindle by a tapered shank and is held in place by a bolt leading through the spindle from the top, to eliminate any possibility of its being extracted from the spindle on the return feed.

The pair of jack screws, which raise and lower the table, are large in diameter. Each screw is retained in a jack and actuated by a heavy worm and worm gear through a bronze nut which is sleeved to the worm gear. Each jack is a unit in itself, with its contents packed in grease. A means for advancing or retarding the screws independently is provided to maintain proper alinement of the table and all thrusts are taken by ball bearings. The ball bearings throughout are of the S. K. F. type.

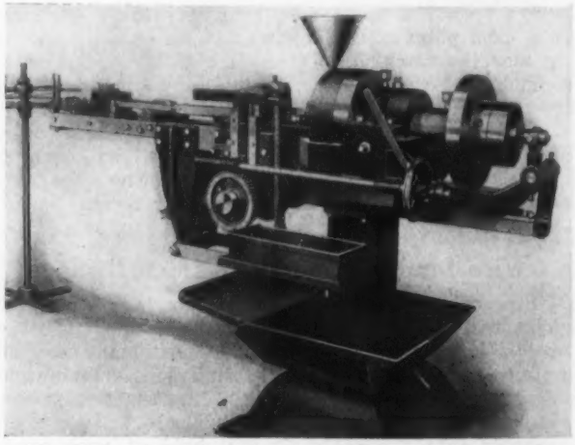
The floor space occupied by the machine is 50 x 108 in. and its net weight is 15,500 lb. It is driven by a 15 to 25-hp. motor.

Swaging Machine for Use in Making Spectacle Frames

A swaging machine designed for use in the manufacture of optical goods and especially for the rapid production of spectacle bows and frames has been developed recently by the Torrington Co., Torrington, Conn. The machine is said to produce the reduced portion of spectacle bows at the rate of approximately six to ten a minute, the wire for the bows being reduced from 0.065 in. to 0.0395 in. in one operation.

The gold filled wire used for these parts is fed from a coil through a roll straightener, as shown in the accompanying illustration, and the subsequent operations of swaging and cutting off the swaged pieces to length is entirely automatic. The lengths to which the parts may be finished vary from 1¾ in. to 3¼ in. and a means of adjustment to permit of obtaining variation in lengths between these two extremes has been provided. There is also an adjustable feature which permits of varying the amount of reduction of the wire.

Oil may be delivered to the swaging head by means of a rotary pump or permitted to drip upon the work from a pipe connected to a small oil tank mounted on the head of the machine, the latter method having been found to be entirely satisfactory in most cases. The weight of the machine is approximately 1200 lb. A



The Reduced Portion of Spectacle Bows Are Produced at Rate of 6 to 10 a Minute

7½-hp. motor is of adequate capacity for a battery of eight machines.

The Youngstown Sheet & Tube Co., Youngstown, has awarded contracts to the Morgan Construction Co., Worcester, Mass., for a continuous sheet bar and billet mill, to replace similar Morgan mills in use at the East Youngstown plant since 1905. The two mills will have a capacity for rolling 200 tons per hr., against 120 tons hourly for the existing units. The rolling speed will be 750 ft. per minute, against 460 ft. by the mills now in operation.

Papers Scheduled for the Foundrymen's Convention in October

The technical program for the annual convention of the American Foundrymen's Association, to be held at Milwaukee, Oct. 13 to 16, is as follows:

Monday, Oct. 13 (Afternoon) Session No. 1 (Joint Session with Institute of Metals Division A. I. M. E.)

"Making Copper Castings from Cupola Melted Metals," by T. F. Jennings, Garfield, Utah.

"Modern Bell Founding," by Wesley Lambert and G. Hall, London, England. Annual Institute of British Foundrymen Exchange Paper.

"Art Bronze Work," by J. F. Arnold, Mt. Vernon, N. Y.

"Recuperation in Connection with Brass Melting," by H. D. Savage, Combustion Engineering Corp., New York.

Report of Committee on Non-Ferrous Metals.

"Founding of Brass in Mexico," by H. H. Miller, Torreon, Coa, Mexico.

Monday, Oct. 13 (Afternoon) Session No. 2 (Steel Foundry Topics)

"Broadening the Field for Steel Castings Through the Use of Alloys and Heat Treatment," by F. Grotts, Holt Mfg. Co., Peoria, Ill.

Report of Committee on Steel Castings.

Report of Committee on Refractories.

"Constructive Criticism on Annealing Steel Castings from the Consumer's Point of View," by J. F. Harper, Allis-Chalmers Co., Milwaukee, Wis.

"Scaleless Annealing of Steel Castings in An Electric Furnace," by V. T. Malcolm, Chapman Valve Mfg. Co., Indian Orchard, Mass.

Tuesday, Oct. 14 (Morning) Session No. 3 (Aluminum and Aluminum Alloys, Joint Session with the Institute of Metals Division A. I. M. M. E.)

"Production of Aluminum Alloy Piston in Permanent Molds," by R. J. Anderson, consulting metallurgical engineer, Boston, Mass., and M. E. Boyd, Clinton, Mich.

"Aluminum-Silicon Alloys," by D. Basch, General Electric Co., Schenectady, N. Y.

"Aluminum Alloy Castings from Sheet Scrap," by H. C. Knerr, Philadelphia.

"Salvage of Aluminum Alloy Castings by Welding and Soldering," by R. J. Anderson, Boston, Mass., and M. S. Boyd, Detroit.

"Alpax, a New Development of Alloy Alloys," by Dr. L. Guillet, France.

Tuesday, Oct. 14 (Morning) Session No. 4 (Steel Foundry)

Report of A. F. A. Representative on Joint Investigation of Phosphorus and Sulphur in Steel.

"Organization and Practice in a Steel Foundry Finishing Room," by C. W. Heywood, Burnside Steel Co., Chicago.

"Notes on the Overall Performance of Acid Electric Furnaces," by T. S. Quinn, Lebanon Steel Foundry, Lebanon, Pa.

Tuesday, Oct. 14 (Morning) Session No. 5 (Apprentice Training)

First Division—Employees and Executives.

"The Employer's Expectation of Apprenticeship," by R. J. Doty, The Sivyer Steel Casting Co., Milwaukee.

"The Milwaukee District Program," by H. S. Falk, Falk Corporation, Milwaukee.

Second Division—District Apprentice Convocation.

"Apprenticeship from Apprentice Viewpoint," by J. Edwards.

"Why I Talk Apprenticeship," by C. Freund.

Discussion.

Tuesday, Oct. 14 (Afternoon) Session No. 6 (Sand Research)

Report of Chairman of Joint Committee on Molding Sand Research.

Report of Chairman of Sub-Committee on Tests of Joint Committee on Molding Sand Research.

"Development and Comparison of Permeability Testing Apparatus," by T. C. Adams, Cornell University, Ithaca, N. Y.

"Relation of Water to Bond and Permeability," by C. R. Nevin, Cornell University, Ithaca, N. Y.

"Method for Direct Reading of Permeability of Sands," by A. A. Grubb, Ohio Brass Co., Mansfield, Ohio.

"Sand Control Testing in the Foundry," by H. W. Dietert, U. S. Radiator Corporation, Detroit.

"A Study of the Effect of Heat on the Clay Content of Molding Sands, As Shown by the Dye Absorption Test," by Messrs. Harrington, MacComb and Hosmer, Hunt Spiller Mfg. Co., Boston.

Tuesday, Oct. 14 (Afternoon) Session No. 7 (Special Session of the Institute of Metals Division of the A. I. M. M. E.)

"Casting and Heat Treatment of Some Aluminum-Copper Magnesium Alloys," by Samuel Daniels, A. J. Lyon and J. B. Johnson.

"Experiments on the Heat Treatment of Alpha-Beta Brass," by G. W. Ellis and D. A. Schemnitz.

"Coating Formed on Corroded Metals and Alloys," by George M. Enos and Robert J. Anderson.

"Notes on Hardness of Heat-Treated Aluminum Bronze," by George F. Comstock.

Wednesday, Oct. 15 (Afternoon) Session No. 8 (Sand Research)

Report of Sub-Committee on Geological Surveys.

Report of Sub-Committee on Conservation and Reclamation.

"Notes on the Grading of Sands," by C. R. Nevin, Cornell University, Ithaca, N. Y.

"An Exhaustive Study of Various Molding Sand Mixtures. Together with the Physical Properties of the Molds and Castings Produced," by Messrs. Harrington, Wright and Hosmer, Hunt Spiller Mfg. Co., Boston.

"The Effect of Moisture, Silt and Clay Content on Various Molding Sand Mixtures," by Messrs. Harrington, Wright and Hosmer, Hunt Spiller Mfg. Co., Boston.

Wednesday, Oct. 15 (Morning) Session No. 9 (Electric Furnaces)

"Making Cast Iron in the Electric Furnace," by E. B. Stearns, American Bridge Co., New York.

"The Electric Furnace and Cast Iron," by F. Hodson, Philadelphia.

"Electric Furnace Iron," by E. L. Wilson, Hartford, Conn.

"The Electric Furnace in the Pipe Foundry," by J. T. MacKenzie, American Cast Iron Pipe Co., Birmingham, Ala.

Wednesday, Oct. 15 (Afternoon) Session No. 10 (Business Session)

Report of Officers.

Presentation of Major Awards.

"A World Outlook for American Foundrymen," by H. Cole Estep, Cleveland.

Wednesday, Oct. 15 (Afternoon) (To follow Session No. 9). Session No. 11 (Industrial Relations)

Wednesday, Oct. 15. 7.00 p. m.—Annual Banquet.

Thursday, Oct. 16 (Morning) Session No. 12 (Malleable Cast Iron)

"Malleable Casting Developments," by Enrique Touceda, Albany, N. Y.

Report of Committee on Malleable Cast Iron.

"Oxidation Losses in Melting," by H. A. Schwartz, National Malleable & Steel Casting Co., Cleveland.

"Broadening An Industry's Horizon," by C. L. Eshleman, American Malleable Casting Association, Cleveland.

"Malleablizing Process," by A. Hayes and W. J. Diederichs, Iowa State College, Ames, Iowa.

Thursday, Oct. 16 (Afternoon) Session No. 13 (Gray Iron)

"Melting Steel in a Cupola," by J. Grennan, University of Michigan, Ann Arbor, Mich.

"Notes on Composition and Structure of A. S. T. M. Bar," by J. Bolton, Niles Tool Works, Hamilton, Ohio.

"An Investigation of Chill Iron," by E. J. Lowry, Hickman-Williams Co., Chicago.

Report of Committee on Cast Iron.

"Differences in Cast Iron Produced by Melting," by W. E. Jominy, University of Michigan, Ann Arbor, Mich.

Reports and Papers to be Assigned to Session

"Departmental Costs in the Foundry," by Howell B. May, W. K. Henderson Iron Works & Supply Co., Shreveport, La.

"Cost Finding in a Foundry," by W. J. Corbett, Electric Steel Founders Research Group, Chicago.

Report of Committee on Corrosion of Ferrous Metals.

Report of Committee on Coke.

Report of Committee on Pattern Standardization.

The exhibition, always a feature of this annual gathering, is to be open on Saturday, Oct. 11 and then on each day of the following week.

National Acme Co. Sells Equipment to Toronto Company

The National Acme Co., Cleveland, has closed its Canadian branch at Montreal and has sold a part of its equipment to the Russell Gear & Machine Co., Toronto. Paul Mellinger, until about four years ago connected with the National Acme Co., will become managing director in charge of sales of the Russell Gear & Machine Co. M. T. Peterson, works manager at Montreal of the National Acme Co., will occupy a similar position with the Russell company. The newspaper reports that the National Acme Co. was about to acquire the Russell Gear & Machine Co. is erroneous.

European Conditions Improving Slowly

Minor Evidences of Better Business from England and Germany —Many Poor Spots and Much Unemployment in Some Lines—French Furnaces Active

(*By Cable*)

LONDON, ENGLAND, Aug. 26.

PIG iron demand is improving, particularly from domestic buyers. Export inquiry is broadening, but prices generally have an easier tendency.

Hematite is dull and easier, with supplies exceeding demand. Foreign ore is dull. Bilbao Rubio is held nominally at 22s. to 22s. 3d. (4.93 to 4.96) c.i.f. Tees.

Tata Iron & Steel Co. is offering Indian ferromanganese through British merchants.

Finished steel is dull, with the exception of sheets. Prices are unchanged.

July exports of pig iron were 35,541 tons, of which 2500 tons were sent to the United States. Total iron and steel exports for July were 339,748 tons.

Yarrow has secured a contract from the Dutch Government for two torpedo-boat destroyers, to be built in Dutch shipyards. Priestman Brothers, Ltd., Hull, are building six mechanical excavators for use in connection with the Sydney, Australia, harbor scheme.

Sheets and Tin Plate

Tin plate bars have been reduced 3s. 6d. to £8 9s. ($37.86) delivered, less 7s. 6d. The tin plate minimum is 23s. ($5.15) basis, f.o.b. The market is quiet, in spite of the rise, which is attributed to the rise in tin prices and threatened increase in wages. Most makers are well sold, though some are wanting specifications for September.

Galvanized sheets are firm, with moderate demand.

Black sheets to Far Eastern specifications are selling moderately. Makers are well sold ahead for some weeks.

On the Continent of Europe

Continental markets still are disorganized, but reports show an improving tone in the German iron and steel trade on account of the signing of the London pact. Buying here is poor. Consumers are awaiting some stability in prices. Most French, Belgian and Luxemburg makers have withdrawn sterling prices.

In Germany industrial conditions still are adverse, although improvement is hoped for. Only one blast furnace out of seven is operating in the Lahn and Dill district. At the Gutehoffnungshütte plant, Oberhausen, Rheinland, it is planned to discharge 1400 workmen.

French iron makers are operating at the previous rate, despite a quieter demand. In the former German Lorraine 43 furnaces are blowing out of a total of 66.

PRICES HIGHER IN GERMANY

Ingots Advance 5 Marks, Bars Are Stiffer and Thin Sheets Sharply Up

(*By Cablegram*)

BERLIN, GERMANY, Aug. 25.—Steel ingots now are quoted at 94 gold marks per metric ton ($22.75 per gross ton). [This is a considerable advance from the 89m. ($21.55) of late July.]

Steel bars are 120m. (1.30c. per lb.) and thin sheets 180m. (1.95c. per lb.). The market is more active. [These figures replace 115 to 120m. for bars and 163 to 170m. (1.76 to 1.84c. per lb.) for thin sheets, in late July.]

Reduction in Output and Prices—Easier Credit Conditions Used in Speculation

BERLIN, GERMANY, Aug. 9.—The business situation has undergone no improvement during the past three weeks. The only favorable factors are an increase in the supply of credit and the termination of the Russo-German trade boycott. Long-term credit, which for-

British and Continental prices per gross ton, except where otherwise stated, f.o.b. makers' works, with American equivalent figured at $4.48 per £1, as follows:

Durham coke, del'd	£1	6s.				$5.82		
Bilbao Rubio ore†	1	4				5.37		
Cleveland No. 1 fdy.	4	9				19.94		
Cleveland No. 3 fdy.	4	4				18.82		
Cleveland No. 4 fdy.	4	3				18.59		
Cleveland No. 4 forge	4	2				18.42		
Cleveland basic	4	2½				18.48		
East Coast mixed	4	12½				20.72		
East Coast hematite	4	19	to £5	0s.		22.18	to	$22.40
(a) Ferromanganese	13	10				60.48		
Rails, 60 lb. and up	8	5	to 9	0		36.96	to	40.32
Billets	7	15	to 8	5		34.72	to	36.96
Sheet and tin plate bars, Welsh	8	9				37.86		
Tin plates, base box	1	3	to 1	3¼		5.15	to	5.18
						C. per Lb.		
Ship plates	9	5	to 9	15		1.85	to	1.95
Boiler plates	13	0	to 13	10		2.60	to	2.70
Tees	9	7½	to 9	17½		1.88	to	1.98
Channels	8	12½	to 9	2½		1.73	to	1.83
Beams	8	7½	to 8	17½		1.68	to	1.78
Round bars, ¾ to 3 in.	9	12½	to 10	2½		1.93	to	2.03
Galv. sheets, 24 gage	18	5	to 18	10		3.65	to	3.70
Black sheets, 24 gage	13	0	to 13	5		2.60	to	2.65
Black sheets, Japanese specifications	15	5				3.05		
Steel hoops	10	15	and 12	10*		2.15	and	2.50*
Cold rolled steel strip, 20 gage	17	0				3.40		

*Export price.
†Ex-ship, Tees, nominal.
(a) Export price, figured back from price landed, duty paid, in United States, about $55, or £12 5s.

Continental Prices, All F. O. B. Channel Ports

(*Pig iron, billets and angles are nominal*)

Foundry pig iron:								
Belgium	£3	18s.	to £4	0s.		$17.47	to	$17.92
France	3	18	to 4	0		17.47	to	17.92
Luxemburg	3	18	to 4	0		17.47	to	17.92
Billets:								
Belgium	5	12½				25.20		
France	5	12½				25.20		
Merchant bars:						C. per Lb.		
Belgium	6	2½				1.23		
Luxemburg	6	2½				1.23		
France	6	2½				1.23		
Joists (beams):								
Belgium	6	0				1.20		
Luxemburg	6	0				1.20		
France	6	0				1.20		
Angles:								
Belgium	8	0	to 8	5		1.60	to	1.65
⅛-in. plates:								
Belgium	7	10				1.50		
Germany	7	10				1.50		
3/16-in. plates:								
Luxemburg	7	10				1.50		
Belgium	7	10				1.50		

merly cost 60 per cent interest or more, now figures around 24 per cent. But, owing to numerous bankruptcies, the banks are very strict in regard to security, and most industrial concerns still complain of lack of working capital. Short-term credit, which is plentiful owing to the increase in bank deposits, is being used mostly for speculation, and a boom in Bourse quotations of stocks and bonds has been the result. From this boom, Western steel and coal securities, which usually lead in speculation, have benefited least, reasons being the continuing burdens of the "Micum" agreements, and uncertainty as to the London Reparations Conference.

Reduced Coal Output

Coal production in the last weeks has declined but remains above demand. The whole production in the first half of 1924, in comparison with production (in the present area) in the same half of 1913 was as follows:

Metric Tons	1924	1913
Coal	51,498,099	69,878,503
Lignite	58,305,616	41,900,158
Coke	10,237,183	14,629,628

Coal production in June totaled 9,100,535 tons, lignite production 9,033,877. Production in the first half of 1924 would have been higher but for the Ruhr strike of May, which brought the whole national output in that month down to 2,621,407 tons. Lignite production, as result of the abundance of coal, tends to decline, after a continuous rise in the first post-war years. The reduction in coal prices (20 per cent) on July 1 did not revive the selling market. The Federal Railroad Council now proposes to reduce coal freight rates. The industrialists' demand for an all-around cut in rates has not been granted.

In the Siegerland ore district only 30 per cent of employees are working. Three of the leading mines have applied for official permission (necessary under an emergency law of 1920) to cease work entirely. Krupps ore mines in this district have reduced output. Of 30 Siegerland blast furnaces only eight now are being operated. Siegerland steel and rolling mills have given notice to discharge the greater part of their workmen on Aug. 15.

Stagnation in Iron and Steel

Sales of pig iron have dropped heavily and in June did not exceed two-thirds of those of May. The Pig Iron Syndicate ascribes the stagnation mainly to money market difficulties. The syndicate on July 30 decided to make no change in prices. In the last fortnight consignments of pig iron by members of the syndicate were the lowest on record. Production has been reduced and numerous blast furnaces and steel mills have ceased work entirely. The rolling mill branch also complains of stagnation and prices, though probably well below production cost, still tend to fall. Demand for sheets is small and output is being reduced. There is still a certain market for thin sheets, under 1 mm. (No. 19½ gage), but the boom in thin sheets which prevailed during the spring has come to an end.

The scrap iron market is entirely dead, practically no business being done on the Dusseldorf-Essen Scrap Exchange. Iron, steel and machinery branches are dull.

The condition of the mechanical branches is little better. The Federal Railroad Administration continues to withhold orders for locomotives and cars. The railroads, however, need large quantities of new rolling stock and rails and a flood of orders is expected as soon as the independent Railroads Corporation proposed in the Dawes report is created. Home demand for agricultural machinery has fallen off. Farmers are short of capital and will not buy until after the harvest is realized. Many farmers over-supplied themselves with machines during the inflation period, this being one means of practicing the "flight from the mark." Export orders can at present be obtained only at 10 per cent below production cost. The home market for motor cars, which boomed until May, has become inactive, and practically no cars are being exported.

Unemployment continues to increase, principally in the number of partly unemployed. The last detailed figures, for end of June, show 16.47 per cent of fully unemployed in the steel and mechanical industries, against 14.11 per cent one month earlier; partly unemployed, 16.97 per cent against 9.04 per cent.

The last July prices averaged (in gold marks per metric ton):

Ingots	89 or	$21.55 per gross ton
Blooms	95 or	22.99 per gross ton
Slabs	108 or	26.14 per gross ton
Construction forms	110 to 115 or	1.19 to 1.24c. per lb.
Bars	115 to 120 or	1.24 to 1.30c. per lb.
Thick sheets (5 mm. or 6½ gage and over)	140 or	1.51c. per lb.
Medium (3 to 5 mm.)	150 or	1.62c. per lb.
Thin (1 to 3 mm. or 19½ to 11½ gage)	163 or	1.76c. per lb.
Thin (under 1 mm.)	170 or	1.84c. per lb.

These are ex-works prices, but they are only approximate. Dealers have sold considerably lower. In the first part of the present month prices were still weakening. The export price for bars is £6 3s. to £6 5s. per ton (1.24c. to 1.26c. per lb.). In West Germany bar iron has been sold as low as 107 marks per metric ton (1.16c. per lb.).

Negotiations are under way for creation of several iron and steel syndicates or conventions to regulate production and prices during the present crisis. In the thick sheets branch an agreement for rationing orders was prepared but completion was wrecked by the refusal of the Mannesmann Tube Corporation to join.

GERMAN EXPORTS AND IMPORTS

Iron and Steel and Machinery Exports Declining, and Imports Expanding

BERLIN, GERMANY, Aug. 9.—The foreign trade report for January to May inclusive shows the usual large import surplus in fuel, ore, pig iron and some other heavy iron and steel products:

	January to May, 1924	
Metric Tons	Imports	Exports
Ore (Including manganese)	446,457	142,643
Coal	4,989,017	388,817
Lignite	823,208	11,757
Coke	215,161	172,983
Iron and iron wares other than machinery	511,687	641,228
Thereof:		
Pig iron	80,618	24,918
Scrap	14,555	161,925
Ingots, blooms, billets, etc	66,935	1,961
Bars, girders, etc	171,287	75,586
Sheets	47,536	60,253
Tin plates	5,881	1,128
Wire	26,937	51,705
Tubes	18,562	19,173
Rails, ties, etc	62,862	5,086
Wheels, axles, etc	4,529	7,105
Agricultural implements	105	11,388
Tools and cutlery	249	9,693
Machinery	2,806	101,631

The motor car export industry is in a bad way. Germany, formerly one of the world's great motor car exporting countries, has of late exported so little that she has actually had a passive balance in this branch, import of all sorts of cars exceeding export by between 300 and 400 cars a month. In April and May this applied to both passenger cars and trucks. Austria is at present Germany's chief foreign supplier with motor vehicles. In 1922 Germany's export surplus of motor vehicles was higher than before the war; but since then it has steadily dropped and last February, for the first time, more cars were imported than exported. In May Germany exported only 80 passenger cars, 41 trucks and 202 motorcycles. Even in the last-named branch there has been a great increase in imports. In 1913 the monthly average export surplus of motor cars was 655 cars, and in 1922 684 cars.

Foreign trade in machines, according to classes, was as follows:

In Metric Tons	1913	1922	1923	Jan. to May, 1924
Machine tools for metal industries	74,338	59,725	35,632	14,183
Machine tools for wood industries	12,222	15,449	12,879	3,653
Other machine tools	3,721	2,993	1,251	419
All machine tools	90,279	78,167	49,762	18,255
Locomotives	54,445	101,250	17,163	6,409
Textiles machines	73,795	43,314	45,191	17,579
Agricultural machines	40,708	34,411	26,704	3,440
Electrical machines	41,889	23,697	26,937	12,207
Other machines	277,705	198,104	142,812	41,541
Machine parts, etc	93,338	62,809	42,418	14,522
All machines	672,159	541,752	350,987	118,953

The decline in export of machine tools is considerable. In 1922 exports in this branch were about 87 per cent of pre-war; in 1923, 55 per cent. In 1924, on basis of the first five months, they would be about 50 per cent. Prices obtained for exported machine tools are about 20 per cent over those of 1913. Values of exports of machine tools were: 1913, 98,270,000 gold marks; 1923, 64,100,000 gold marks; January to May, 1924, 25,510,000 gold marks. The value of exports of all machines (machine tools included) was: 1913, 770,870,000 gold marks; 1923, 523,680,000 gold marks; January to May, 1924, 198,950,000 gold marks.

In the first months of this year imports of machinery, like those of other finished products, have greatly increased. This has given a strong impulse to the movement in favor of higher import duties; and the industrial People's Party is believed to have promised support to the agrarians for the passing of the food duties bill now before the Reichstag, on condition that the duties on manufactured goods are increased also. The Minister of Industry, however, asserts that the new duties will be used, not to exclude foreign goods, but with the aim of facilitating the conclusion of commercial agreements.

FOREIGN MARKETS ACTIVE

Japan Buys Pipe, Sheet Piling and Tie Plates—Inquiries for Structural Steel—Ruhr Steel Again Offered

NEW YORK, Aug. 26.—Inquiry by Japanese interests is active, but the Chinese market is still extremely quiet. Japanese users of sulphate of ammonia have been active in the past week to 10 days and it is estimated have purchased upward of 5000 tons, largely from the leading independent seller of this product.

Current inquiries from Japan include some structural material, a recent specification calling for about 375 tons of I beams (700 to 800 pieces). In railroad business, one export company has booked an order for 500 tons of tie plates for a Japanese railroad. The 25 miles of 60-lb. rails asked for by the Chosen State Railways are still pending. While the inquiry of the Nagoya Gas Co. for 275,000 ft. of gas pipe is reported to have been awarded to the New York branch of a Japanese export house, the 1,155,000 ft. of pipe for the Imperial Government Railways is still pending. The 1700 tons of Lackawanna sheet steel piling represented by a recent inquiry of the Reconstruction Bureau is understood to have been placed with a large Japanese exporter.

Considerable interest is being shown in quotations on foreign steel. Importers expect to be able to name prices that will secure some business from American consumers, provided the domestic market holds about today's level. It is reported that importers able to quote on rails have submitted prices to the Texas & Pacific Railroad on 19,000 tons of rails, recently inquired for by that railroad, but there is little expectation that the business will be placed with any but an American mill.

A part of the steel seized in the Ruhr is again being offered by an importer in New York. Between 30,000 and 35,000 tons of material, mostly structural steel, is claimed to be included in this lot, as well as black and blue annealed sheets and plates. In some quarters it is stated that practically all the first grade material taken by the French during the occupation was shipped later to foreign markets under special agreement with the Ruhr producers. The importer offering to quote on the present lot, however, is prepared to sell under regular inspection.

SPENDING $5,000,000 MONTHLY

Steel Corporation Extension Work as Indicative of Confidence in Business Outlook

The United States Steel Corporation is making larger expenditures for extensions and improvements than were supposed a few months ago would be necessary or possible, according to Judge Elbert H. Gary, chairman of the corporation, who was interviewed by newspaper men on Tuesday afternoon, Aug. 26. "We are expending at the present time," said he, "at the rate of about $5,000,000 per month for extensions and improvements, and our present intentions are to continue to expend at least that amount for the remainder of the year. This appears to us to be necessary to take care of the business on hand and the business we expect to receive."

The statement was made in the course of a general discussion on the status of business. "As I have told you before," he continued, "there has been a steady, perceptible, though small, improvement in our business, commencing several months ago. The improvement has up to date been greater than I expected it would be and is fully as much as I would like to see it. I mean by that I would rather see a slow, steady and persistent growth in business than to see a rapid progress that might result in a sudden material reaction at any time.

"Our new business, that is, our bookings of new orders, according to the last report received, for the first 22 days in August were 10 per cent more than they were during the same time in July; and July, as you know, was somewhat larger than June, and so on. Our shipments for the first 16 days of August were 18.3 per cent larger than they were for the first 16 days of July. It seems to me that showing should be considered very satisfactory. I should hope, and that is about as strong as I am inclined to represent as a rule, that at the end of our directors' meeting in October, if I should say anything, I could make a report as good as that or better. I now think the prediction I made last April, when I first returned from the South American trip, was fully justified."

Some Forward Orders Being Placed

YOUNGSTOWN, Aug. 25.—Steel makers in the Youngstown district report that current low prices of rolled products are stimulating purchases against future requirements to some degree. This is especially marked in the case of plates, quotable at 2c. per lb. District producers have lately received rather sizable plate orders from a number of the larger fabricating interests, deliveries covering a period of several months.

This situation is interpreted as indicating the belief of consumers that prices have touched bottom in some commodities at least.

An exception to the demand for fabricated steel, however, is found in the case of reinforcing bars. Makers at Youngstown are not operating, for the time being, at least, in excess of 50 per cent, and express the opinion that specifications and new buying are being held back.

There will be no chemical exposition in 1924. The next Exposition of Chemical Industries will be held Sept. 28 to Oct. 3, 1925, at the Grand Central Palace, New York. Owing to the fact that the Chemical Exposition has been held without interruption since 1915, inquiries regarding the omission of the exposition this year have been only natural.

A booklet giving an approved form of blank for drawing up a profit and loss account and a balance sheet for a business enterprise has been issued for general distribution by the policyholders' service bureau of the Metropolitan Life Insurance Co., New York.

AMERICAN MACHINERY TRADE

Exports and Imports in July of Machine Tools and Other Machinery

WASHINGTON, Aug. 25.—United States exports of machinery in July, not including "all other machinery and parts" amounted to $14,876,961, compared with $17,395,769 in July last year. Included in the figure were exports of machine tools in July amounting to 2571 in number and $571,395 in value, against 3763, valued at $671,932, in June.

For the seven months of the fiscal year, the machinery exports, again excluding "all other machinery and parts" amounted to $116,242,662, against $103,499,555 in the corresponding seven months of 1923. The largest export items in June included agricultural machinery and implements, $4,376,512; typewriters, $1,035,089; mining and quarrying machinery, $782,762; textile machinery, $768,766, and sugar mill machinery, $683,697. For the ten months, agricultural machinery led with $37,515,816, followed by mining and quarrying machinery, $5,971,742; sewing machines, $5,287,315; textile machinery, $5,190,244; electrical machinery and apparatus, excepting locomotives, $4,761,668, and pumps, $4,203,497.

Imports of machinery in July amounted to $819,769 compared with $677,029 for June. For the seven months of the calendar year, imports amounted to $5,708,061 compared with $7,138,839 for the corresponding period of 1923.

Machinery Exports from the United States
(By Value)

	July, 1923	July, 1924	Seven Months Ended July, 1923	Seven Months Ended July, 1924
Locomotives	$867,443	$284,624	$2,693,218	$1,876,699
Other Steam Engines	91,733	168,411	727,650	1,820,288
Boilers	216,752	111,056	621,627	976,706
Accessories and Parts	162,654	323,060	622,103	2,186,702
Automobile Engines	275,960	175,017	3,566,018	2,207,718
Other Internal Combustion Engines	682,057	679,589	3,828,476	3,888,250
Accessories and Parts for	265,502	256,416	1,920,219	2,197,518
Electric Locomotives	287,234	428,951	2,464,012	1,481,360
Other Electric Machinery and Apparatus	742,258	522,292	4,830,488	4,761,668
Excavating Machinery	117,019	70,440	928,344	1,263,551
Concrete Mixers	54,041	58,384	325,956	376,232
Road Making Machinery	114,139	90,333	719,025	757,463
Elevators and Elevator Machinery	424,936	126,214	2,314,279	1,096,643
Mining and Quarrying Machinery	850,289	782,762	5,294,274	5,971,742
Oil Well Machinery	696,523	623,918	3,582,798	3,922,956
Pumps	572,955	511,072	4,155,515	4,203,497
Lathes	96,780	141,192	461,065	638,017
Boring and Drilling Machines	67,505	74,381	387,347	322,016
Planers, Shapers and Slotters	32,538	24,468	130,512	163,158
Bending and Power Presses	19,030	23,791	115,673	167,307
Gear Cutters	20,371	27,299	94,878	234,640
Milling Machines	17,913	40,271	240,580	263,522
Thread Cutting and Screw Machines	27,913	43,075	268,109	364,388
Punching and Shearing Machines	16,666	6,206	103,449	42,631
Power Hammers	20,005	20,175	82,721	118,997
Rolling Machines	6,010	3,538	17,749	87,687
Sharpening and Grinding Machines	87,102	137,181	562,849	980,347
Other Metal Working Machinery and Parts of	392,209	290,997	2,644,242	2,431,797
Textile Machinery	650,165	768,766	5,416,426	5,190,244
Sewing Machines	916,922	514,299	4,790,367	5,287,315
Shoe Machinery	112,427	98,533	833,240	772,014
Flour-Mill and Gristmill Machinery	107,622	55,867	574,244	494,203
Sugar-mill Machinery	431,561	683,697	1,522,967	2,341,018
Paper and Pulp Mill Machinery	141,300	238,163	1,396,466	1,380,092
Sawmill Machinery	41,734	35,998	312,893	312,090
Other Woodworking Machinery	71,974	94,466	625,251	785,449
Refrigerating and Ice Making Machinery	157,689	132,227	1,411,805	1,370,126
Air Compressors	158,746	218,445	1,411,880	1,798,859
Typewriters	1,112,923	1,035,089	8,340,639	8,842,343
Power Laundry Machinery	82,078	80,901	576,344	615,993
Typesetting Machines	231,947	158,680	1,974,240	2,049,487
Printing Presses	342,330	340,205	2,455,264	2,684,113
Agricultural Machinery and Implements	5,609,825	4,376,512	28,154,335	37,515,816
All Other Machinery and Parts	9,074,211	.....	57,501,235	.....
Total	$26,469,980	$14,876,960*	$161,000,700	$116,242,662*

*Not including figure for "all other machinery and parts."

Imports of Machinery Into the United States
(By Value)

	July 1923	July 1924	Seven Months Ended July, 1923	Seven Months Ended July, 1924
Metal working machine tools	$28,549	$17,457	$250,583	$225,613
Agricultural machinery and implements	198,387	247,585	1,893,261	1,515,369
Electrical machinery and apparatus	20,791	29,909	351,161	230,169
Other power generating machinery	48,183	2,406	1,410,841	32,984
Other machinery	221,488	370,425	1,475,803	2,391,332
Vehicles except agricultural	279,198	151,987	1,757,190	1,262,594
Total	$796,596	$819,769	$7,138,839	$5,708,061

Machine Tool Exports

	June, 1924 Number	June, 1924 Value	July, 1924 Number	July, 1924 Value
Lathes	72	$49,133	96	$141,196
Boring and drilling machines	187	34,018	579	74,381
Planers, shapers and slotters	21	27,364	23	24,468
Bending and power presses	38	24,192	27	23,791
Gear cutters	24	33,438	110	27,299
Milling machines	62	70,028	25	40,271
Thread-cutting and screw machines	41	30,500	123	43,075
Punching and shearing machines	12	4,956	13	6,206
Power hammers	16	26,342	33	20,175
Rolling machines	2	10,238	2	3,538
*Sharpening and grinding machines	271	238,488	278	90,907
Chucks for machine tools	1,680	27,531	335	13,357
Pneumatic portable tools	1,337	95,704	827	62,731
Total	3,763	$671,932	2,571	$571,395

*Includes number of external and internal grinding machines only; "other sharpening and grinding machines" are reported now by weight instead of by number.

To Exhibit New Internal Grinder

A new semi-automatic internal grinding machine similar to its style No. 72, with hydraulic table control, but incorporating added features, will be shown by the Heald Machine Co., Worcester, at the machine tool exhibit to be held in New Haven, Sept. 15 to 18, under the auspices of the American Society of Mechanical Engineers, and also at the exhibit to be held in Boston, Sept. 22 to 26, in connection with the convention of the American Society for Steel Treating.

An outstanding feature of the new machine is an indicator which controls the size of the work to any required limits. It also controls the operation of the diamond and the withdrawal of the table when the work is finished. After the work has been chucked and the machine started, a variable feed cross-slide table automatically feeds the wheel into the work to its maximum. As the finished size of the hole is approached the indicator controlling the cross-feed reduces it to a fine feed of 0.0002 in. and at the same time the diamond automatically trues the wheel. The fine feed and the dressing of the wheel at this point in the operation is said to eliminate spring in the spindle, preventing taper or bell mouth, and to give an excellent finish to the work, maintaining very close limits in size.

Other features intended to contribute to increased production include a rigid ball-bearing work-head which does not require adjustment and a high-duty type of wheel-head which may be run at higher speed than formerly. The machine is also equipped with a quick-acting wheel guard. The dogs for controlling the table travel are of new design. They are provided with micrometer adjustments and may be altered while the machine is in operation.

The by-product coke plant of the Carnegie Steel Co. at Farrell, Pa., has been suspended. Coke will be supplied the company's blast furnaces at Farrell from the Clairton by-product coke plant.

FABRICATED STEEL BUSINESS

Bookings Slightly Better Than Last Week—Fresh Inquiry Falls Off

Although the week's bookings in fabricated steel work show an increase of more than 2500 tons, as compared to the previous week, they are still below the reported bookings of the several weeks prior to the last. They total 18,531 tons. Fresh inquiry reported during the week dropped to the low mark of 9815 tons. The awards include:

New York Central, bridge in Indiana, 600 tons, to the McClintic-Marshall Co.

Central Railroad of New Jersey, bridge at Morgan, N. J., 250 tons, to the Shoemaker Bridge Co.

New York Public Schools No. 136, Manhattan borough, 1250 tons, and No. 122, Astoria, L. I., 1250 tons, both to the Hedden Iron Construction Co.

Boiler house, department store, New Rochelle, N. Y., 300 tons, to the Hinkle Iron Co.

Colgate University, Hamilton, N. Y., gymnasium, 150 tons, to Utica Steam Engine & Boiler Works.

Duquesne Light Co., Pittsburgh, transmission towers, 100 tons, to Jones & Laughlin Steel Corporation.

Louisville & Nashville Railroad, Cumberland River bridge, 850 tons, to American Bridge Co.

Louisville & Nashville Railroad, Chef Menteur bridge, 1450 tons, to Mt. Vernon Bridge & Iron Works.

Grandstand for race track at Cincinnati, 900 tons, to McClintic-Marshall Co.

Gas holder at Robinson, Ill., 100 tons, to Stacey Mfg. Co.

City hospital, Binghamton, N. Y., 550 tons, to the Kellogg Structural Steel Co.

Transmission towers, Adirondack Power & Light Co., 200 tons, to the Bancroft-Jones Corporation.

Power house and transmission towers, E. L. Phillips & Co., New York, 450 tons, to the Bancroft-Jones Corporation.

National Malleable & Steel Castings Co., plant building, Indianapolis, 325 tons, to Robert Berner Structural Steel Co.

Julia Street wharf extension, Board of Commissioners, Port of New Orleans, 294 tons, to Lukens Steel Co.

Plankinton Arcade, Milwaukee, addition, 1777 tons, to American Bridge Co.

First National Bank Building, addition, Chicago, 2000 tons, to Morava Construction Co.

Bridges, Albany, Ore., 750 tons, to Minneapolis Steel & Machinery Co.

Building, Dallas, Tex., 350 tons, to Kansas City Structural Steel Co.

Viaduct, Pueblo, Colo., 400 tons, to Minneapolis Steel & Machinery Co.

Locks 49 and 50, Ohio River, 235 tons, to Milwaukee Bridge Co.

St. Mary's Hospital, addition, Madison, Wis., 100 tons, to Lakeside Bridge & Steel Co.

Electric Bond & Share Co., 71 Broadway, New York, electric sub-stations in Cuba, 350 tons, galvanized material, to Lehigh Structural Steel Co.

Alabama Power Co., transmission towers, 800 tons, to Nashville Bridge Co.

Office building, St. Petersburg, Fla., 200 tons, to Nashville Bridge Co.

State of Missouri, bridge, 550 tons, to Kansas City Structural Steel Co.

Liberty Title & Trust Company Building, Philadelphia, 2000 tons, general contract to Irwin & Leighton, steel award not announced.

Structural Projects Pending

Inquiries for structural steel work include the following:

American Locomotive Co., Schenectady, N. Y., crane runways and other additions, 700 tons.

Erie Railroad, two bridges, 400 tons.

New York State hospital, Kings Park, L. I., 300 tons.

Columbus Heat & Power Co., Columbus, Ohio, power plant in Pickaway county, 2000 tons, bids being taken.

Standard Oil Co. of Indiana, plant building, Whiting, Ind., 670 tons.

American Radiator Co., building, Chicago, 360 tons.

H. M. Byllesby Co., Chicago, garage building at Oklahoma City, Okla., 160 tons.

Chicago, Burlington & Quincy Railroad Co., crossing, Western Avenue, Chicago, 500 tons.

Flint Malleable Castings Co., foundry building, Flint, Mich., 350 tons.

American Insurance Co., Columbus, Ohio, 1500 tons, plans now being completed. John Gill & Son, Cleveland, awarded general contract.

Selig building, Indianapolis, 600 tons, bids in.

Hocking Valley Railroad, bridge work, 300 tons, bids being taken.

Ohio State University, Columbus, Ohio, four buildings, 100 tons, bids being taken.

The Mariemont Co., Cincinnati, power house, 100 tons, bids being taken.

Cotton mill, Malden Spinning & Dyeing Co., Malden, Mass., 160 tons.

Junior high school, Fall River, Mass., 290 tons.

Memorial Building, Plymouth, Mass., 100 tons.

Community hall, Amsterdam, N. Y., 135 tons.

Garage, Boston, 440 tons.

Bridge, Palmer, Mass., Boston & Albany Railroad, 150 tons.

Highway bridge, Hoosick, N. Y., 100 tons.

Philadelphia, bridge over Girard Avenue, 200 tons, and bridge at Second Street, 200 tons.

RAILROAD EQUIPMENT BUYING

New Inquiries Light—Few Awards but Pending Business Promises Well

But little new business developed in the past week. New inquiries totaled about 3000, mostly automobile cars. Awards, although they included passenger, cane and flat cars, aggregated only 245 in all. Steel underframes to the number of 650 were placed.

Locomotives in need of repair Aug. 1 totaled 11,105 or 17.2 per cent of the number on line. This was a decrease of 667 from the July 15 figure. Freight cars in need of repair on Aug. 1 totaled 202,864 or 8.9 per cent of the number on line, according to the car service division, American Railway Association. This was an increase of 2712 over the number reported in need of repairs on July 15.

The St. Louis & South Western is inquiring for 1000 stock cars.

The Texas & Pacific is in the market for 250 to 1000 automobile cars and a like number of automobile box cars.

The Lehigh Valley has entered the market for 5 passenger coaches.

The Baltimore & Ohio has placed 80 steel passenger cars with the Standard Steel Car Co., each to be equipped with two 200 hp. General Electric motors.

The Fruit Growers Express has placed 400 underframes with the Ryan Car Co.

Swift & Co., Chicago, has awarded 200 underframes to the Western Steel Car & Foundry Co.

The Central La Francia Railroad, Cuba, has placed 50 30-ton cane cars with the American Steel Co.

The Manila Railroad, Philippine Islands, has ordered 30 30-ton flat cars from the Koppel Car & Equipment Co.

The Union Traction Co. of Indiana has placed 15 passenger cars with the St. Louis Car Co.

The General Sugar Co. has placed 70 15-ton cane cars with the Magor Car Co.

The Great Northern has awarded 50 underframes for express refrigerator cars to Siems-Stembel Co.

A new record for rapid freight car construction is claimed by the Atlantic Coast Line car shops at Florence, S. C. The record lowers the mark set by the Delaware & Hudson Railroad shops by almost one hour. A box car upon which work was begun at 7.30 a. m., Aug. 20, was completed, including the painting and stenciling, at 3 p. m., arrived at a loading platform at 3.51 p. m., received 15,000 lb. of tobacco and was in transit to Winston-Salem, N. C., at 3.56 p. m. The actual construction of the car required a few minutes more than 48 man hours, it is stated.

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The Factors of Discontent

THE candidacy of LaFollette has attracted to itself all of the elements of economic discontent that exist in this country. If we previously had no socialistic and communistic party except that which flared up fitfully under the leadership of Debs, we have one now. It is a good thing that these elements are being weeded out of the old political parties and are being brought together. We are able thus to see better what they are and what they want; and we become less subject to the treachery of persons who are working under false colors.

It is a motley crowd that has rallied around LaFollette. There are socialists, communists and syndicalists; sentimentalists and seekers for the promotion of selfish interest; organized labor (officially) and some wheat-growing agrarians. There are many nondescripts, who are simply dissatisfied.

The forces of discontent represent the eternal resentment against those who have by those who have not, or who have not so much as they would like to have. The more scholarly among the socialists are moved by the spirit of brotherly love, which is founded on the Christian religion; and the thought that all men should share alike. This is not, however, the teaching of Christ, who said that the things that are Caesar's should be rendered unto Caesar, and that to him who hath shall be given. He also related the parable of the vineyard. All men can not live alike, because that is contrary to the laws of nature. Nature through millions of years has decreed the survival of the fittest and nature did not make all men equally fit.

The liberal form of government that we enjoy aims to give every man his chance. If it ever falls short of doing so, all of us should work for correction of the obstacle. The dissatisfied ones, however, want something more than giving every man his chance. They want protection for the incompetent. The small shopkeeper who conducts his business wastefully, the farmer who loses his capital in land speculation, the laborer who does not want to toil, all pray for guarantees against their own incompetence, folly or slothfulness, no matter what be the cost to the rest of the people. A certain element of communists, fortunately small, wants to plunder the well-to-do.

The political leaders of these discontented ones know perfectly that they can not carry out the promises they make. They mislead their followers for their own selfish interests. It is good business for them to foster discontent. They get a livelihood, and sometimes a competence, out of it.

LaFollette never had any chance to do more than create mischief. It is conceivable that with a following of a relatively small number of voters he might defeat the wishes of the great number and thus nullify the principle of our republican form of government. That is conceivable, but fortunately not probable. It is a good thing that he has attracted his heterogeneous following.

The farmer who is in no way of a socialistic frame of mind, although he has sometimes let socialistic experiments be tried upon him, shies off when he sees the red label. The farmer has sense enough, moreover, to see the incongruity of raising the pay for railroad labor and reducing railroad freight rates, both of which LaFollette promises in the same breath. Anyway, since the rises in the prices for wheat, corn, hogs and cotton, the farmer is not so discontented as he has been, and probably is getting the idea that Wall Street is not such a terrible thing after all.

CHARTING pig iron production against population, while an interesting study, cannot be done indiscriminately. One of the statistical agencies has done this, putting the figures for the United States and those for Great Britain on the same diagram and to the same scale, and drawing the inference that the diagram represents the relative uses made of iron and its products by the two populations. When we consider, however, that the United States exports between 5 and 10 per cent of its steel production, while Great Britain exports approximately half of its production, this makes a totally different story. British pig iron

production per capita remains at about half American production per capita, but British use or consumption of iron per capita (including imports) drops to about one-third that of the United States. Evidently such a diagram is a misleading thing, unless properly explained.

Bureaucratic Cross Purposes

THE American silver producers recently formed an association under the authority of the Webb-Pomerene act. Before doing so they consulted the Federal Trade Commission respecting the legality of their plans and, extraordinary to report, they obtained categorical replies to their inquiries. Among other things the commission stated to them that

> manifestly the arrangement must be devoid of any concerted curtailment of production or withdrawal from the domestic market of any part of its normal supply. It is well understood that an incidental or inconsequential effect upon domestic prices is not unlawful.

The commission then proceeds to say that it is well settled, under the Sherman act, that a contract which only incidentally or indirectly restricts competition is not denounced by the act. This sounds like common sense.

This exchange of correspondence reminds us of the original conception that the Federal Trade Commission was designed to assist and guide business in its relation to the Federal laws. In the course of time that conception appeared to be largely forgotten and the Federal Trade Commission, instead of functioning as a guide, philosopher and friend, has more and more assumed the air of a punitive power.

We are interested, however, in the incongruity between the recent declaration of the Federal Trade Commission and the late policies of the Department of Justice. The latter in its campaign against trade associations, under Attorney General Daugherty, professed to believe that even statistical cooperation among producers is collusion in restraint of trade, preposterous as that idea may appear. To the Department of Justice every export association has been an object of suspicion, and the very name has been anathema. The copper producers narrowly escaped indictment owing to their having pledged a block of copper for export, although there remained an excessive supply for domestic consumption and the price for copper had declined.

The Department of Justice refuses to tell business men whether their practices are in its eyes legal or illegal, but tells them in effect that if they commit what appears to be a crime the department will go after them and let the courts decide which is right. The Federal Trade Commission has now offered an interpretation of law in advance. Its interpretation, moreover, is different from that of the Department of Justice.

But this is not all of the story. These two Government agencies from time to time change their own views and policies. Judge Gary has informed us that the Federal Trade Commission as constituted yesteryear assured him that the Pittsburgh Plus plan was legal. The Federal Trade Commission of the present day has declared otherwise. A Federal Trade Commission of tomorrow may tell the silver producers that they had violated the law in doing what the present Federal Trade Commission has told them is quite right. The Department of Justice under the direction of Mr. Stone appears to be less vindictive toward trade associations than it was under Mr. Daugherty.

The trouble of business men is not so much with the Sherman law, which the Supreme Court in early decisions ruled must be interpreted by reason, as it is with the officials of Government departments and bureaus whose duty it is to enforce the law and who do so to a considerable extent according to standards of their own making. There is just the difference between a spirit of helpfulness and one of antagonism. Many bureaucrats consider that personal reputations are made more rapidly in the latter way than in the former. As with other things our troubles are less from our laws than from how they are administered.

Increase in Steel Capacity

FREQUENTLY THE IRON AGE is asked what is the steel-making capacity of the United States, particularly what figure representing potential output is taken as the basis for the statements made from time to time in market reviews as to the scale of operations of the steel companies.

It was in its report for 1913 that the American Iron and Steel Institute first gave a classified statement of steel-making capacity. Ten years have elapsed now, making a convenient period for comparison, while as 1913 was the year before the war the figures are of particular interest.

The statistical work consists in adding the figures reported by the manufacturers. The methods of rating used by the steel companies making the reports presumably vary, and the statements are of rated capacity. They must not be confused with the estimates made from time to time in IRON AGE editorials, for instance, of the actual practical capacity of the industry. These are based, ordinarily, upon actual performance plus an allowance for idle units or for new construction. Thus THE IRON AGE arrived at a 54,000,000-ton steel ingot capacity, as of Jan. 1, whereas the Iron and Steel Institute figure was nearly 57,000,000 tons.

The table below gives the capacity figures shown in the Steel Institute reports for the period 1913-1923. The capacity given in each case is the capacity at the end of the year, not the average capacity during the year. The reference is to steel ingots exclusively, steel castings being another matter:

Steel Ingot Capacity at End of Year (American Iron and Steel Institute Report) and Production During Year, Gross Tons

	Capacity	Production	Percentage
1913....	37,904,575	30,280,130	80.0
1914....	39,523,800	22,819,784	57.8
1915....	42,823,200	31,284,212	73.5
1916....	47,585,995	41,401,917	87.0
1917....	50,454,590	43,619,200	86.5
1918....	52,348,420	43,051,022	82.2
1919....	53,193,905	33,694,795	63.5
1920....	54,662,225	40,881,392	74.9
1921....	55,817,685	19,224,084	34.5
1922....	56,060,770	34,568,418	61.6
1923....	56,759,960	43,485,665	76.6

Some tests can be applied to these figures, to

suggest the difference between rated capacity and feasible performance. It cannot be far out to take the average operation in 1913 at 90 per cent, the works running practically full until late in the year, when there was a sharp drop. With 37,900,000 tons capacity reported for the end of the year, the average of the year (allowing for new construction) may be taken at 36,500,000 tons, and with this operating at 90 per cent the actual production comes out at 92 per cent of the nominal capacity operated. In 1916 we had a year of full operation throughout, but there is the difficulty that rated capacity increased during the year by 3,762,795 tons. Assuming one-third of this as the equivalent effective for a year we have 45,077,000 tons as the average rated capacity, and the year's actual production was 92 per cent of this, agreeing with the 92 per cent derived for 1913.

For the present time, however, we have the estimate carefully prepared by THE IRON AGE early this year of 54,000,000 tons as the actual feasible capacity, and this is 95 per cent of the reported capacity. One may infer that works managers are somewhat more conservative than formerly in their reports to the institute, but there is another factor. There has been relatively little new construction lately, practice having improved at various works whereby they can do better, although they do not modify their ratings. It is plain that the percentage to be deducted from ratings, to indicate performance possibilities, is quite small.

It is of some interest, in passing, to note that in ten years the capacity rating increased almost precisely 50 per cent. A more common estimate has been that capacity increased by 50 per cent in a shorter period, or from the beginning of the war to a time a year or two ago.

Increase in European Steel

IF the pig iron and steel output of the leading countries of Europe be taken as an index, the industrial recovery which is expected to follow the London agreement on the Dawes plan is in process of being discounted. The production figures for the five leading producing nations (returns for Germany not being available), are as follows in thousands of gross tons per month, according to the British Federation of Iron and Steel Manufacturers:

	Average Monthly Production		
Pig Iron	1913	1923	To June 1, 1924
Great Britain....	855.0	619.9	637.4
United States....	2,580.5	3,363.4	3,080.1
France	427.2	445.6	613.3
Belgium	203.8	179.1	222.7
Luxemburg	209.0	115.4	174.1
Totals	4,275.5	4,723.4	4,727.6
Steel			
Great Britain....	638.6	707.4	760.0
United States....	2,608.4	3,603.3	3,518.5
France	384.5	408.3	558.1
Belgium	202.3	186.2	234.1
Luxemburg	109.0	98.3	150.1
Totals	3,942.8	5,003.5	5,220.8

In pig iron it will be seen that in every country named except the United States, production this year has expanded beyond the 1923 rate, though Great Britain and Luxemburg are not yet up to their 1913 performance.

In steel the contrasts are more striking. The increase over 1913 is about 25 per cent to June 1, this year—5,220,800 tons monthly average compared with 3,942,800 tons per month—and would have been larger but for the depression in this country. Each of the European countries has greatly increased its production this year over 1923. This expansion started late last year, making the 1923 and 1924 outputs the largest since the war.

The Ruhr occupation seriously crippled the steel industry of all Europe. While it might have been thought that other countries would profit by bottling up Germany, the deadlock between France and Germany affected so many interests, political and industrial, that as long as it lasted industry in all Europe was hampered. When the creation of the Dawes commission pointed to a way out, and later when Germany showed an understanding of the fact that only by the Dawes plan could she escape utter ruin, there were some tentative moves in the basic industry.The tenor of European iron and steel market reports in recent months would indicate that they have not gone far, in view of the uncertainties of the pending negotiations. At the same time it is evident from the statistics that the foundation is not lacking for a forward movement in iron and steel that will be an important factor in the world-wide revival of industry now expected.

Our Best Customers

IN a general way it is known that our export trade in iron and steel has depended to an important extent in recent years on sales made to Canada and Japan. An analysis of export statistics of seven major steel products for the fiscal year ended with June brings out strikingly the smallness of our trade with other countries. Taking plates, black and galvanized sheets, barbed and galvanized wire, rails and tin plate, the exports for the two fiscal years were as follows in gross tons:

	1923	1924
To Canada.....	255,480	233,330
To Japan.....	165,460	270,420
Total	420,940	503,750
Total of 7 products (approx.)	750,000	880,000
Per cent to Canada and Japan	56.0	57.0

Thus in the last two fiscal years between 56 and 57 per cent of the exports of these products has gone to the two countries. Japan last year absorbed 30.5 per cent and Canada 26.5 per cent of the shipments. Proximity and service have always been large factors in the Canadian preference for the products of our steel mills; but in Japan it is more a case of having constantly to meet the competition of European mills. To this has now been added the handicap of the needless affronting of Japan by the most unrepresentative and inefficient Congress of a generation.

Charles L. Anderson and R. T. Radcliffe, Hamilton, Ohio, have been appointed receivers of the Hamilton Machine Tool Co., Hamilton, under $25,000 bond. The appointment of receivers was brought on following an action of the Citizens Savings Bank and Trust Co. against the machine tool company.

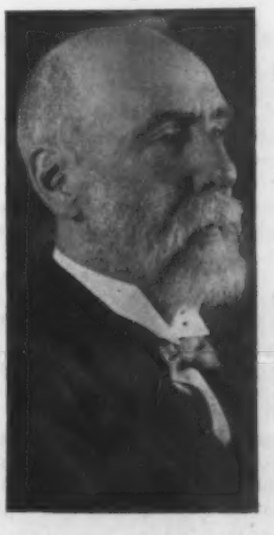
Replogle Purchase of Warren Pipe Foundry

Long Established Eastern Pipe Company Acquired by Blast Furnace Interests —A Record of 68 Years

THE Replogle Steel Co. acquired the Warren Foundry & Pipe Co. on Tuesday, Aug. 26, exercising the option which expired that day for the purchase of the 10,000 shares of the capital stock of the Warren company at $400 a share. At a meeting held in New York Tuesday afternoon five of the seven directors of the Warren Foundry & Pipe Co. resigned and in their places J. Leonard Replogle, Leonard Peckitt, W. S. Pilling, L. P. Ross and William A. Kerr of the Replogle organization were elected. Of the old board of the Warren company, William H. Hulick and Chester Snyder remain as directors. The new officers of the Warren Foundry & Pipe Co. will be the following: Leonard Peckitt, president; William H. Hulick, vice-president; L. R. Dohm, treasurer; A. L. Reiley, secretary, and Samuel H. Bell, assistant secretary. The offices of the Warren company will remain in New York as heretofore.

The plan of the new owners of the Warren company was to merge it with the Empire Steel & Iron Co., the capital stock of both being now owned by the Replogle Steel Co. and both being New Jersey corporations. This merger is now in process and the name of the Warren Foundry Co. will be retained. The financing of the purchase of the pipe company was carried out by an issue of $2,500,000 of 6 per cent bonds covering the properties of the Empire and Warren companies, and by the sale for cash of $1,500,000 of treasury stock of the Replogle Steel Co.

The Warren Foundry & Pipe Co. has a capacity of 8000 tons a month of water and gas pipe. Its purchase by the Replogle interests was in pursuance of the purpose of the latter to have under its own control an outlet for a portion of its big iron production. The decision was between establishing a pipe plant of its own and acquiring one already in existence. The Replogle Steel Co.'s pig iron capacity is 350,000 tons a year at its two Wharton, N. J., furnaces, and about 200,000 tons a year at the modern Catasauqua, Pa., furnace and the smaller Oxford, N. J., furnace of the Empire Steel & Iron Co. The Empire company was acquired in April, 1992, and with it the Replogle company secured at the same time extensive and highly valuable iron ore properties.



WILLIAM H. HULICK has been for 34 years an officer of the Warren Foundry & Pipe Co. — vice-president from 1890 to 1914 and president for the past 10 years.

The acquisition of the Warren Foundry & Pipe Co., established at Phillipsburg, N. J., in 1856, as the Warren Foundry & Machine Co. and known by that name until two years ago, brings to the Replogle interests one of the oldest cast iron pipe foundries in the country and one of the strongest organizations in that trade. The plant at Phillipsburg covers about 27 acres and includes 35 buildings. The employees of the company number 750 and some of them have been with the company for long periods. The old employees, who have been in the service of the company for 30 or 40 years, are pensioned and a number of others are now eligible to receive pensions under the system that prevails.

The Warren Foundry & Machine Co. came into being at a meeting of the stockholders held on March 12, 1856, at the home of Charles Dawes, in the borough of Easton, Pa. Present at this meeting were James McKeen, engaged in the lumber business and a trustee of Lafayette College; John Leidy Riegel, engaged in the milling and lumber business and later in the manufacture of paper; Russell S. Chidsey, Alexander Wilson, John Green, Isaac Wikoff, Carman F. Randolph, Depue S. Miller, D. V. McLean, H. S. Heckman, Daniel Black, Levi Bennett and George W. Stein.

It was in 1857 that the company began the making of pipe. John Firth and John Ingham, who had learned the business in England, being in charge. At first only large pipe was cast, but in October, 1858, when the disastrous effects of the great panic of 1857 were gradually disappearing, and it had become a certainty that the new company had weathered the financial storm, the casting of small pipe vertically was begun, following careful experiments. While the original intention was to operate a foundry and machine shop, Firth and Ingham soon induced the company to make pipe manufacture the sole business and pipe has been the only product for 67 years. From this small beginning the business has steadily developed until the earnings for the past year were close to $1,000,000.

William H. Hulick had been the president of the Warren Foundry & Pipe Co. from 1914 to the day of its acquisition by the Replogle Steel Co. He succeeded to this position upon the death of William Runkle, president for many years, and has long been an important figure in the pipe trade. Prior to becoming president Mr. Hulick had been vice-president for 24 years. He is the son of Derrick Hulick, one of the original subscribers to the company's stock and an organizer of the Thomas Iron Co. Mr. Hulick will continue with the new company, the only other member of the old organization to remain as a director being Chester Snyder, president of the First National Bank of Easton. Other officers of the old company were Andrew D. Chidsey, vice-president and treasurer, and A. L. Reiley, secretary. The directors included E. J. Fox, formerly Judge of the Supreme Court of Pennsylvania and president of the Easton Trust Co.; Clayton Hackett, vice-president Easton National Bank; Lee Clymer, president First National Bank of Riegelsville, Pa., and W. H. Walters, an attorney of Phillipsburg.

Iron and Steel Markets

FURTHER IMPROVEMENT

Production Sustained with August Bookings Exceeding July's

Demand for Rails a Feature—Price Variations Prolong Buying Hesitancy

Steel company estimates of August orders, which have been coming out this week, quite uniformly show increases over the new orders of July. The Steel Corporation's report of 10 per cent higher bookings in the first 22 days of August is considerably exceeded by the percentage figures of several independent companies. But percentages are not all-convincing in view of the restricted tonnages which were common in the first half of July.

There is a general agreement, however, in the report that August brought improvement in the steel trade, whether measured by new buying or by operations at the plants of the leading companies.

Production is at a somewhat higher rate this week in the Pittsburgh and Chicago districts, but the fact that some producers run at a fairly high rate for several days to clean up orders on hand and then drop down while business accumulates makes exact estimates difficult. The Steel Corporation as a whole is probably doing better than 55 per cent, while the average for independents is something less.

The appearance of demand for rails in company with the promise of car buying is an encouraging factor. The New York Central is putting out an inquiry for 150,000 to 175,000 tons of 80-lb. to 127-lb. rails of Dudley section, and pending purchases of Southwestern and other roads, as reported from Chicago, represent about 100,000 tons more. The Chesapeake & Ohio has placed 10,000 tons of rails and the Norfolk & Western is inquiring for 12,000 tons of tie plates.

At Chicago the 11,000 cars under inquiry will require 130,000 tons of steel.

Prices still show enough variation to prolong the hesitant policy of buyers. In semi-finished steel, in view of late concessions in finished products, there is a decline of about $1 a ton, but the basis of third quarter contracts on billets and sheet bars is not yet definitely determined.

Plate prices are much in the buyer's favor, particularly on material ordinarily carrying large extras, such as locomotive firebox steel. Large buyers of bars likewise have been able to secure further concessions.

Wrought pipe prices have held fairly well, in the face of some weakness in resale prices. A Louisiana pipe line, 38 miles of 14-in. pipe, is a late contract.

In cast iron pipe further weakening has brought the market to $44, Birmingham, for 6-in.

A notable export transaction is the sale of 36,000 tons of galvanized sheets to Argentina for use in a special Government project.

Sheet prices in the Central West are more generally in line with 3.50c. for black, 4.60c. for galvanized and 2.70c. for blue annealed, but there is continued sharp competition in the Chicago and St. Louis districts. Automobile buying lags.

The slight advances in pig iron represented by prices now being quoted have not been put to a severe test as yet, and the market may be called steady rather than strong. Indications are that August production will exceed somewhat that of July, but it will take the actual returns from the furnaces to decide. Several furnaces of steel companies have blown in this month, but the output of merchant iron has changed but little.

In ferromanganese the recent reduction by British makers to $95 brought out in turn a $90 price for the domestic product and several thousand tons were sold at that figure.

Late estimates of the Lake Superior ore movement range from 40,000,000 to 45,000,000 tons, and the tendency of pig iron production in September will go far toward determining the season's figure.

No change has occurred this week in the products entering THE IRON AGE composite prices for pig iron and for finished steel. The pig iron price, $19.46, compares with $25.38 one year ago. The finished steel price, 2.51c. per lb., compares with 2.775c. one year ago.

Pittsburgh

Prices Still Favorable to Buyers—Semi-finished Steel Lower

PITTSBURGH, Aug. 26.—The trend of steel orders and of plant operations still is upward, but there is not yet enough business to give all producers a share, and in most products competition is sharp enough to keep prices favorable to buyers. There is a fair degree of strength in structural shapes, but the plate market remains easy and there are intimations that large buyers of steel bars are not being called on to pay as much as 2.10c. base, Pittsburgh. Pipe prices are holding with remarkable tenacity in the face of some weakness in resale prices, and enlarged specifications against tin plate contracts, coupled with some good-sized export orders, are responsible for increased firmness in that product. The sheet market is fairly firm in this part of the country, but that is not altogether the case in some districts. Price betterment in other directions seems to be only to the extent that those willing to go below what is regarded as the regular

A Comparison of Prices

Advances Over the Previous Week in Heavy Type, Declines in Italics
At date, one week, one month, and one year previous

For Early Delivery

Pig Iron, Per Gross Ton:	Aug. 26, 1924	Aug. 19, 1924	July 29, 1924	Aug. 28, 1923
No. 2X, Philadelphia‡	$21.76	$21.76	$21.26	$26.26
No. 2, Valley Furnace†	**19.50**	19.00	19.00	25.00
No. 2, Southern Cin'ti†	21.55	21.55	21.55	27.55
No. 2, Birmingham, Ala.†	17.50	17.50	17.50	24.00
No. 2 foundry, Chicago*	20.50	20.50	20.00	27.00
Basic, del'd, eastern Pa.	20.00	20.00	20.00	25.00
Basic, Valley furnace	19.00	19.00	19.00	25.00
Valley Bessemer del. P'gh	21.76	21.76	21.76	28.26
Malleable, Chicago*	20.50	20.50	20.00	27.00
Malleable, Valley	**19.50**	19.00	19.00	24.50
Gray forge, Pittsburgh	**20.76**	20.26	20.26	25.76
L. S. charcoal, Chicago	29.04	29.04	29.04	32.15
Ferromanganese, furnace	*90.00*	95.00	105.00	117.50
Rails, Billets, etc., Per Gross Ton:				
O.-h. rails, heavy, at mill	$43.00	$43.00	$43.00	$43.00
Bess. billets, Pittsburgh	*37.00*	38.00	38.00	42.50
O.-h. billets, Pittsburgh	*37.00*	38.00	38.00	42.50
O.-h. sheet bars, P'gh	*37.50*	38.00	38.00	42.50
Forging billets, base, P'gh.	*42.00*	43.00	43.00	47.50
O.-h. billets, Phila	*42.17*	43.17	43.17	47.67
Wire rods, Pittsburgh	46.00	46.00	48.00	51.00
	Cents	Cents	Cents	Cents
Skelp, gr. steel, P'gh, lb.	2.00	2.00	2.15	2.40
Light rails at mill	1.85	1.85	1.90	2.25
Finished Iron and Steel,				
Per. Lb. to Large Buyers:	Cents	Cents	Cents	Cents
Iron bars, Philadelphia	2.32	2.42	2.42	2.67
Iron bars, Chicago	2.15	2.15	2.20	2.40
Steel bars, Pittsburgh	2.10	2.10	2.15	2.40
Steel bars, Chicago	2.10	2.10	2.15	2.60
Steel bars, New York	2.44	2.44	2.49	2.74
Tank plates, Pittsburgh	1.90	1.90	2.00	2.50
Tank plates, Chicago	2.15	2.15	2.25	2.80
Tank plates, New York	2.09	2.09	2.14	2.84
Beams, Pittsburgh	2.00	2.00	2.00	2.50
Beams, Chicago	2.15	2.15	2.25	2.70
Beams, New York	2.34	2.34	2.34	2.84
Steel hoops, Pittsburgh	2.60	2.60	2.60	3.15

*The average switching charge for delivery to foundries in the Chicago district is 61c. per ton.
†Silicon, 1.75 to 2.25. ‡Silicon, 2.25 to 2.75.

Sheets, Nails and Wire,	Aug. 26, 1924	Aug. 19, 1924	July 29, 1924	Aug. 28, 1923
Per Lb. to Large Buyers:	Cents	Cents	Cents	Cents
Sheets, black, No. 28, P'gh.	3.50	3.50	3.40	3.75
Sheets, galv., No. 28, P'gh.	4.60	4.60	4.50	5.00
Sheets, blue an'l'd, 9 & 10	2.65	2.65	2.60	3.00
Wire nails, Pittsburgh	2.80	2.80	2.85	3.00
Plain wire, Pittsburgh	2.55	2.55	2.60	2.75
Barbed wire, galv., P'gh.	3.50	3.50	3.55	3.80
Tin plate, 100-lb. box, P'gh.	$5.50	$5.50	$5.50	$5.50
Old Material, Per Gross Ton:				
Carwheels, Chicago	**$17.50**	$17.00	$16.50	$19.50
Carwheels, Philadelphia	18.00	18.00	17.50	21.00
Heavy steel scrap, P'gh.	17.50	17.50	18.00	18.00
Heavy steel scrap, Phila.	17.00	17.00	15.50	16.50
Heavy steel scrap, Ch'go	15.50	15.50	15.25	16.00
No. 1 cast, Pittsburgh	18.00	18.00	18.00	21.50
No. 1 cast, Philadelphia	*18.50*	19.00	17.00	21.50
No. 1 cast, Ch'go (net ton)	17.50	17.50	17.00	18.50
No. 1 RR. wrot, Phila.	*19.00*	19.50	18.00	18.00
No. 1 RR. wrot. Ch'go (net)	**14.00**	13.75	13.50	15.00
Coke, Connellsville, Per Net Ton at Oven:				
Furnace coke, prompt	$3.00	$3.00	$3.00	$4.75
Foundry coke, prompt	4.00	4.00	4.00	5.50
Metals,				
Per Lb. to Large Buyers:	Cents	Cents	Cents	Cents
Lake copper, New York	*13.62½*	13.75	13.25	14.25
Electrolytic copper, refinery	*13.25*	13.50	12.87½	13.75
Zinc, St. Louis	**6.25**	6.22½	6.07½	6.42½
Zinc, New York	**6.60**	6.57½	6.42½	6.77½
Lead, St. Louis	8.00	8.00	7.35	6.65
Lead, New York	**8.25**	8.20	7.50	6.75
Tin (Straits), New York	*51.25*	52.37½	48.37½	40.75
Antimony (Asiatic), N. Y.	**10.50**	9.75	8.87½	7.50

On export business there are frequent variations from the above prices. Also, in domestic business, there is at times a range of prices on various products, as shown in our market report on other pages.

THE IRON AGE Composite Prices

Aug. 26, 1924, Finished Steel, 2.510c. Per Lb.

Based on prices of steel bars, beams, tank plates, plain wire, open-hearth rails, black pipe and black sheets. These products constitute 83 per cent of the United States output of finished steel.		
	Aug. 19, 1924,	2.510c.
	July 29, 1924,	2.524c.
	Aug. 28, 1923,	2.775c.
	10-year pre-war average,	1.689c.

Aug. 26, 1924, Pig Iron, $19.46 Per Gross Ton

Based on average of basic and foundry irons, the basic being Valley quotation, the foundry an average of Chicago, Philadelphia and Birmingham.		
	Aug. 19, 1924,	$19.46
	July 29, 1924,	19.29
	Aug. 28, 1923,	25.38
	10-year pre-war average,	15.72

1924 to Date			1923		
High		Low	High		Low
2.789c., Jan. 15	Finished Steel	2.510c., Aug. 19	2.824c., April 24		2.446c., Jan. 2
$22.88, Feb. 26	Pig Iron	$19.29, July 8	$30.86, March 20		$20.77, Nov. 20

market quotations are not quite so numerous as they were recently.

Semi-finished steel prices have eased off 50c. to $1 a ton, a rather natural development in view of the decline that already has taken place in finished products.

The recent advance in prices of foundry iron is not yet fully established. So many users of this grade covered at the lower price that only small lot melters are in the market and there are still two sources of supply at less than $20, furnace, for the base grade. Steel-making irons remain at former prices because there is not enough demand to establish a change.

Activity still is lacking in the scrap market locally, although some buying is noted by steel makers in Ohio, who have paid $1.50 a ton more for heavy melting steel than it is possible to obtain here. Evidently scrap dealers have plenty of confidence in the future of the market, as it is reported that heavy melting steel offered by the Baltimore & Ohio, bids on which closed yesterday, brought between $18.75 to $19 per gross ton.

It is somewhat difficult to estimate ingot production in this and nearby districts, because some producers are putting on as much capacity as possible and cleaning up such orders as are on hand and then shutting down for other orders to accumulate. Those following this practice are in excellent shape to accommodate demands for prompt shipment, and most demands are for that kind of service. Other plants are putting on capacity only as orders indicate a run of at least two weeks or so. The Carnegie Steel Co. is making ingots at a rate of about 56 per cent of capacity and the independent average is not far from that rate.

While one or two independent companies have adopted a plan of quoting a delivered price and indicating in the invoice the freight from mill to destination,

the more common situation is that the independent producers are waiting on the Steel Corporation to make some formal announcement as to its course in response to the "cease and desist" order of the Federal Trade Commission in the Pittsburgh basing point case before making any change in sales practice. It has been the recent practice of the Steel Corporation to quote delivered prices on a number of its lines, prepaying freight from mill to destination.

Pig Iron.—Some sales of foundry iron are being made at the advanced price of $20, furnace, for No. 2 grade, to which a number of producers went last week, following some fair sized bookings at $19. The sales as a rule, however, involve only small lots, and as they are usually to melters located short distances from the shipping furnaces, it is a question if the low freight charge did not have considerable to do with the price that was paid. A number of attempts have been made to secure supplies at the old price, and while these have been generally unsuccessful, it is noted that the prospective buyers have in many cases deferred the purchase. All producers of foundry iron, moreover, are not yet quoting $20 and while $19 has definitely disappeared it is still possible to secure supplies at $19.50. Quotations above $19, furnace, for basic iron, and $20, furnace, for Bessemer grade appear to be nothing more than asking prices, as those grades still are available at those prices. The lowest price now quoted on malleable iron is $19.50, that being the price on 1000 tons sold for shipment from a western Pennsylvania furnace to a Pittsburgh melter.

We quote Valley furnace, the freight rate for delivery to the Cleveland or Pitstburgh district being $1.76 per gross ton:

Basic	$19.00 to $20.00
Bessemer	20.00 to 21.00
Gray forge	19.00 to 19.50
No. 2 foundry	19.50 to 20.00
No. 3 foundry	19.00 to 19.50
Malleable	19.50 to 20.00
Low phosphorus, copper free	27.00 to 28.00

Ferroalloys.—The market is trying to find a trading level on ferromanganese, and $95, Atlantic seaboard, no longer is the minimum price. Reports from the East note a sale of 5000 tons of British material late last week at $92.50 and a fair-sized tonnage was taken in the past few days in this district at that figure. At the same time, agents of British producers claim that they have had firm bids of $92.50 refused by their principals, and it is well known that several thousand tons were sold outside the Pittsburgh district proper at $95. This would indicate a range of $92.50 to $95 as the proper one on British material. Domestic material takes a range of $90 to $95, as one important producer yesterday was offering supplies for immediate acceptance at $90. It was said that this price was made to consumers who had paid more and thus were being enabled to write down their average price, but other evidence shows that the price was generally made and not confined merely to those who had higher-priced material. Domestic interest which named $90 for immediate acceptance booked a considerable tonnage at that price and then withdrew it, going to a quotation of $95. The lowest price now named in this district on 50 per cent ferrosilicon is $72, delivered, this by a small producer, who hitherto has been quoting $70. Makers representing the bulk of the production are quoting $74 to $75. There is not much demand for this alloy in this district. Business in spiegeleisen again is quiet after a few fair-sized sales to Ohio users; prices are unchanged. Prices are given on page 541.

Semi-Finished Steel.—Sheet bars have lately become available in the Youngstown district at $37.50 to contract customers, and there is little doubt that this price or possibly a little less could be done on a tonnage of fair size for early shipment. Specifications against sheet bar contracts are rising with the increased bookings of sheets, but total demands upon makers are not so great that they could not take on more business and get it out promptly. Billets and slabs still are commonly priced at $38 and forging billets at $43, but there are offerings at $1 a ton less. Makers of wire rods are quoting $46, base, but there are some deviations from that figure. There is not enough business in skelp to give basis for a definite quotation; the price given is the asking price. Steel ingot production in this and nearby districts still is increasing and probably now is at about 55 per cent of capacity. The number of steel making units in use would indicate a higher rate, but a number of them are making steel only four or five days a week. Prices are given on page 541.

Wire Products.—Orders still are gaining in number and with most manufacturers they show a gain in size and instead of all being for immediate delivery, there are now occasional contracts calling for deliveries extending for a full month. The market is not absolutely rigid at the regular quotations, but deviations are not nearly so frequent as was the case recently. Locally, the market is $2.80, base, per keg for bright nails and $2.55, base, per 100 lb. for plain wire. In competitive territory a delivered price is being made by several producers and that price equalizes freights with mills having an advantage in that respect. Prices are given on page 540.

Tubular Goods.—Butt welded pipe capacity is very well engaged in this and nearby districts, due to the fact that there is persistent improvement in the orders for merchant pipe with the approach of fall and house building and heating demands. The fact that quick shipment is wanted in practically all cases is taken to mean that jobbers' stocks are pretty much broken. There is reasonably good operation of lap welded pipe mills, but this is more on account of line pipe than oil country pipe demands. The one favorable condition in the latter is the fact that field stocks are moderate and this will mean demands upon the mills with any appreciable improvement in the oil situation. National Tube Co. has taken 38 miles of 14-in. plain end pipe, or about 3500 tons, for a gas line in Louisiana, to be laid by Booth & Flynn, Inc. The Andean National Corporation has not yet closed for the 365 miles of 10-in. pipe for South America, which means about 40,000 tons. Mill prices on pipe are holding well, but secondary weakness still rules in merchant pipe, with local jobbers selling from their stocks at 63 and 5 per cent discount, or at cost. Boiler tube inquiries are more frequent, but weakness in prices continues. Discounts are given on page 540.

Sheets.—Demands upon the mill still are gaining both in number and size and this tends to stiffen the price ideas of producers, particularly those who recently were disposed to name prices that would fetch the orders. In this territory the market now is well established at 3.50c., base, for black; 4.60c., base, for galvanized, and 2.70c., base, for blue annealed. Bookings of the last have been especially good. The bulk of the business is for specified delivery, but there are signs that some buyers would enter fourth quarter contracts at today's prices if makers were disposed to accept them. The American Sheet & Tin Plate Co. continues to receive some Japanese business, and in the past 60 days has taken about 40,000 tons, mostly of light gage, but including a fair sprinkling of the heavier gages. Making allowance for the fact that all mills are not operating 16 turns a week, we estimate the current rate of production at about 60 per cent; that compares with the July rate of about 48 per cent and the June rate of around 40 per cent. Prices are given on page 540.

Tin Plate.—The past week has brought some quickening in the demand and despite crop reports of a rather unfavorable character, it is now evident that can makers did not overestimate their requirements. The leading maker late last week took 40,000 boxes for early delivery for domestic account and specifications against contracts are running ahead of quotas. This interest took 28,000 boxes for tin plate, or half of the order placed late last week by the Nippon Oil Co. There has been some increase in its operating schedules and also in those of independent makers, who likewise have been getting larger orders. Condensed milk can sizes show notable gains in demands. Black plate production is running about 55 per cent of capacity, or about 8 to 10 per cent over that of a week ago. The price holds at $5.50 per base box, Pittsburgh, for standard cokes for domestic account.

Cold-Finished Steel Bars and Shafting.—The situation shows no special change either as regards prices or demand. The common quotation is 2.80c., base, Pittsburgh, for rolled, drawn, turned or polished bars and shafting in carload lots and there are few deviations from that price. There is some talk of an advance, based on the fact that this price does not show a fair margin of profit at today's operating rate, but definite action is restrained by the fact that the price of hot-rolled bars is not very stable at 2.15c. and demand is not active enough now to sustain higher prices. Buyers are more liberal in their specifications against old orders, but do not yet show any marked tendency to anticipate their requirements. Ground shafting holds at 3.20c., base, f.o.b. mill, for lots of a carload or more.

Track Supplies.—Local producers are not figuring on much business outside of the 600 tons of tie plates and some spikes for the Pennsylvania Railroad. Tie plates are priced locally at 2.50c. per lb. and large railroad spikes at 2.80c., base, but those prices are not firm. Prices are given on page 540.

Structural Material.—The market is holding at a range of 2c. to 2.10c. base for large structural shapes. The lower price, however, is not available on small lots, on which none of the mills is going below 2.10c. Structural inquiries are running more numerous again this week after the recent lull. Not a few of the awards run to small lots for quick delivery, the desire being strong to get the steel under cover before winter. Prices are given on page 540.

Plates.—There are so many makers seeking a share of a very moderate business that prices still are very much in buyers' favor. The common asking price of local and Youngstown mills is 2c., base, but on lots exceeding a carload that price is not very interesting to buyers. The market is quotable from 1.90c. to 2c. base on such business as is being done, but there are reports that quotations of 1.85c. have been made. Prices are given on page 540.

Steel Rails.—It is understood that the railroads are making up their rail requirement budgets and makers are looking for negotiations for 1925 tonnages to be started in the next few weeks. Demand for light rails still runs chiefly to small lots and sales are at the recent range of prices. Prices are given on page 541.

Iron and Steel Bars.—Makers of steel bars still are quoting 2.15c. base and on small lots are able to get that price, but where a fair sized lot is involved 2.10c. is the ruling figure and it is understood that some mills in trying to tie up contract buyers over the remainder of the year have gone even lower. Prices below 2.10c., however, are not available except on lots large enough to assure the mills of economical rolling schedules. Current demands are fairly numerous but small. Iron bars are only moderately active and prices would be shaded on attractive inquiries. Prices are given on page 540.

Hot Rolled Flats.—The situation shows no special change. On the hoop and band sizes the market is reasonably well maintained at prevailing quotations, but on wide material prices depend largely on the attractiveness of the inquiry. Prices are given on page 540.

Cold Rolled Strips.—Some increase is noted in orders but makers are not yet filled up to a point that they can take a very independent position on prices. The range still is 4c. to 4.25c., base.

Bolts, Nuts and Rivets.—Producers in this district are making a firm stand at prices recently announced, but they are still working on orders taken at lower figures and only a small part of current shipments carry the new quotations. Prices and discounts are given on page 540.

Coke and Coal.—Three or four inquiries involving 10,000 to 14,000 tons of furnace coke per month for the last quarter of the year are before producers, but not much headway yet has been made for closing them. Producers generally are asking $3.25 per net ton at ovens, while blast furnace interests seeking supplies do not seem disposed to go above $3. There is some by-products coke available at a price that figures out about $3 at Connellsville. The spot beehive furnace coke market remains at $3 per net ton at ovens for standard grade. In view of the recent activity in foundry grades of pig iron, there is some disappointment that there has not been a corresponding gain in the demand for foundry coke, supplies of which for spot or prompt delivery still are available at $4 per net ton at ovens. Some producers are asking up to $4.50, but sales at that price are few. Demand for coal is somewhat more active than it has been, but the gain is more pronounced in domestic than in industrial grades. Mine run steam coal is quoted at $1.50 to $2 per net ton at mines; coking grade from $1.60 to $1.75 and gas coal at $2 to $2.25. Steam slack is priced at $1.20 to $1.30 and gas slack at $1.30 to $1.40.

Old Material.—It is reported that a Warren, Ohio, consumer closed late last week for a round tonnage of heavy melting steel of better than the average quality and paid $19, delivered. Youngstown melters, although not recent buyers, are taking in shipments against old orders carrying prices of from $18 to $19 quite steadily. But locally, activity still is lacking and dealers are finding it impossible to get the mills above $17.50 on heavy melting grade. On overshipments or shipments made without orders, mills are not allowing more than $17.50. Small tonnages are being offered at $18, but if a mill should enter the market for a round tonnage it is doubtful if less than $19 would be named. At the same time it is disconcerting to dealers that demand for scrap here is not increasing in keeping with that for finished steel. Machine shop turnings and heavy breakable cast scrap have stiffened slightly in price on a few sales; other grades are at the prices of last week. The Pennsylvania Railroad will receive bids until noon, Sept. 3, on 25,500 gross tons of scrap and 12 locomotives and tenders.

We quote for delivery to consumers' mill in the Pittsburgh and other districts taking the Pittsburgh freight rate as follows:

Per Gross Ton	
Heavy melting steel	$17.50 to $18.00
No. 1 cast, cupola size	18.00 to 18.50
Rails for rolling, Newark and Cambridge, Ohio; Cumberland, Md.; Huntington, W. Va., and Franklin, Pa.	18.50 to 19.50
Compressed sheet steel	16.00 to 16.50
Bundled sheets, sides and ends	14.50 to 15.00
Railroad knuckles and couplers	20.00 to 20.50
Railroad coil and leaf springs	20.00 to 20.50
Low phosphorus blooms and billet ends	22.00 to 22.50
Low phosphorus plate and other material	21.00 to 21.50
Railroad malleable	16.00 to 16.50
Steel car axles	20.00 to 20.50
Cast iron wheels	16.50 to 17.00
Rolled steel wheels	20.00 to 20.50
Machine shop turnings	14.50 to 15.00
Sheet bar crops	18.00 to 18.50
Heavy steel axle turnings	15.00 to 15.50
Short shoveling turnings	15.00 to 15.25
Heavy breakable cast	16.00 to 16.50
Stove plate	13.50 to 14.00
Cast iron borings	15.00 to 15.25
No. 1 railroad wrought	15.00 to 15.50
No. 2 railroad wrought	17.50 to 18.00

Canadian Old Material Market

OTTAWA, ONT., Aug. 25.—Interest in the Canadian iron and steel scrap market is steadily becoming more pronounced. While business is still much below normal, both selling and buying interests are taking a more optimistic view of the future and a much improved sentiment prevails. On some commodities a stronger demand is reported by local dealers, while at the same time a few inquiries are making their appearance for material on last quarter account.

Dealers' buying prices are as follows:

Gross Tons	Toronto	Montreal
Steel turnings	$8.00	$8.00
Machine shop turnings	9.00	7.00
Wrought pipe	6.00	7.00
Rails	10.00	12.00
No. 1 wrought scrap	10.00	11.00
Heavy melting steel	10.00	10.50
Steel axles	14.00	18.00
Axles, wrought iron	17.00	20.00
Net Tons		
Standard car wheels	13.00	14.00
Malleable scrap	13.00	14.00
Stove plate	12.00	12.00
No. 1 machinery cast	17.00	18.00

Chicago

Activity in Rails and Railroad Equipment—Ingot Output Increasing

CHICAGO, Aug. 26.—Steel mills find inquiries, sales and specifications the heaviest in four months. Railroad demand is particularly promising both with respect to cars and rails. The Chesapeake & Ohio has placed orders here for 10,000 tons of rails, and the New York Central is about to issue an inquiry for 150,000 to 175,000 tons. The Norfolk & Western is in the market for 12,000 tons of tie plates. Rolling stock inquiries aggregate more than 11,000 freight cars, involving 130,000 tons of steel. Activity in oil storage tanks is also above the average, as indicated by the placing of 14,000 tons of plates with local mills during the week. Some 12,000 tons additional is pending. Structural fabricating awards are in good volume and a number of large lettings are imminent. Demand for bars and sheets shows a steady increase, with orders coming from a wide variety of users. Buying by the automobile industry is disappointing, although here and there are evidences of improvement even in that field.

Generally speaking, prices of finished steel are stationary and steady. Failure to force further concessions has caused some large buyers to place orders for stock.

Mill operations continue to improve. Because of releases against contracts, as well as new business, the Gary rail mill, which has been idle for two months, is scheduled to resume operations Sept. 2. Fourteen blast furnaces continue active out of 34 steel works stacks in the district. Ingot output, however, is increasing. A large independent is running at 65 to 70 per cent of capacity, while another important interest is on a 60 per cent basis. A third large producer is operating at 43 per cent.

Pig Iron.—The blowing in of an Iroquois furnace today and the scheduled resumption of the Zenith stack at Duluth, Sept. 15 or earlier, mark the first change for the better in merchant pig iron production in this district. For some time a Mayville furnace has been the only strictly merchant stack producing. The blowing in of two additional stacks indicates that stocks on furnace yards have been so largely sold that new output is regarded as imperative. New demand for pig iron is again picking up after a quiet period which followed the recent price advance. A Chicago user is in the market for 1000 tons of foundry for first quarter. A Wisconsin melter wants 500 tons of malleable for the same delivery. A Michigan stove manufacturer is inquiring for 200 tons of high silicon foundry for early shipment. A local interest is inquiring for 300 tons of low phosphorus for 60 to 90-day delivery. Another Chicago buyer has placed 500 tons of low phosphorus at $31.70, delivered. A steady demand for charcoal iron has developed no changes in prices. A local melter has closed for 200 tons of charcoal iron for delivery over the next 60 days. Southern foundry for all rail delivery is still available at $17.50 to $18, base Birmingham. A Chicago user has closed for 200 tons of Southern iron for barge and rail shipment at $22.18, delivered.

Quotations on Northern foundry, high phosphorus, malleable and basic iron are f.o.b. local furnaces and do not include an average switching charge of 61c. per ton. Other prices are for iron delivered at consumers' yards.

Northern No. 2 foundry, sil. 1.75 to 2.25	$20.50
Northern No. 1 foundry, sil. 2.25 to 2.75	21.00
Malleable, not over 2.25 sil.	20.50
Basic	20.50
High phosphorus	20.50
Lake Superior charcoal, averaging sil. 1.50, delivered at Chicago	29.04
Southern No. 2 (barge and rail)	22.18
Southern No. 2, sil. 1.75 to 2.25	$23.51 to 24.01
Low phos., sil. 1 to 2 per cent, copper free	31.70
Silvery, sil. 8 per cent	34.29 to 35.29
Electric ferrosilicon, 14 to 16 per cent	43.42

Ferroalloys.—The steady decline in ferromanganese has brought out considerable buying and it is now estimated that fully 4000 tons has been sold in this market during the past three weeks. The present going quotation is $90, seaboard, or $4 below the price current a week ago. Spiegeleisen is weak at $33, seaboard.

We quote 80 per cent ferromanganese, $97.56, delivered; 50 per cent ferrosilicon, $75, delivered; spiegeleisen, 18 to 22 per cent, $40.56, delivered.

Plates.—For oil storage tanks 14,000 tons has been booked by local mills during the week and 12,000 tons additional is pending. Railroad car builders have placed 2300 tons of steel, but this amount is small compared with the requirements represented in pending car inquiries. Over 11,000 cars are in the market, requiring 130,000 tons. The Chesapeake & Ohio will close today or tomorrow for 2000 70-ton gondola cars which will require 35,000 tons above the wheels. The price situation is substantially unchanged and it is notable that the attitude of mills is stiffening. Finding that they can force no further concessions, a number of large buyers have placed orders for stock. The ruling market appears to be fairly represented by 2.15c., Chicago, although some business has been booked at 2.20c.

The mill quotation is 2.15c., Chicago. Jobbers quote 3.10c. for plates out of stock.

Structural Material.—Lettings for the week total 6200 tons, of which 3800 tons is represented by the Plankinton Building addition, Milwaukee, and the First National Bank addition, Chicago. These were the first of a group of large pending projects to be awarded, but others are expected to be let during the current week. Among them are the Morrison Hotel addition, 5000 tons; the Great Northern ore dock, Allouez, Wis., 4000 tons; the United Masonic Temple, Chicago, 5000 tons; the Eitel Brothers Building, Chicago, 7500 tons, and the Illinois Women's Athletic Club Building, Chicago, 2100 tons. That it will require the placing of some of this tonnage to straighten the position of fabricators is indicated by the persistence of low bidding. A wharf extension at New Orleans, involving 300 tons, was awarded at a price of $88.60 erected. Plain material is stationary at 2.15c., Chicago, and it is possible that its next move will be upward, as some business has been closed at as high as 2.20c.

The mill quotation on plain material is 2.15c., Chicago. Jobbers quote 3.10c. for plain material out of warehouse.

Reinforcing Bars.—Notwithstanding the fact that more than 4000 tons of work is pending, price uncertainty appears to be delaying the placement of tonnage and lettings are exceedingly light. Warehouse prices now range from 2.25c. to 2.30c., Chicago, and as low as 2.20c. has been reported. The Concrete Steel Co. has been awarded 100 tons for the Winona Hotel, Bay City, Mich. Concrete bar dealers find encouragement in the recent placing of general contracts for a number of large local projects. Pending business includes:

Hotel Sherman Annex, Chicago, 200 tons, general contract awarded to George A. Fuller Co.

Hotel Sherman service building, Chicago, 600 tons, general contract awarded to Krahl Construction Co.

Hotel, office and theater building for Eitel Brothers, Randolph and Wells Streets, Chicago, 600 tons, general contract awarded to Hegeman-Harris Co.

Twenty-third Street viaduct, Chicago, 700 tons, general contract awarded to Avery Brundage.

Stockton public grammar school, Chicago, 100 tons, figures taken.

Sheets.—General demand shows steady improvement, although the automobile industry continues to take little interest in the market. The South, which has cashed in on its crops, is a more liberal buyer. Refrigerator manufacturers are operating full and are taking considerable tonnage. Good sized inquiries have been received from stove manufacturers. Prices are firmer, although shading has not entirely disappeared.

Mill quotations are 3.50c. for No. 28 black, 2.70c. for No. 10 blue annealed, and 4.60c. for No. 28 galvanized, all being Pittsburgh prices subject to a freight rate to Chicago of 34c. per 100 lb.

Jobbers quote f.o.b. Chicago: 3.80c. for blue annealed; 4.50c. for black, and 5.50c. for galvanized.

Bars.—Both inquiries and orders for soft steel bars are the heaviest in four months and business is well diversified, coming from practically all classes of users.

Buying by the automobile industry still lags, although forge shops and spring works are increasing their operations and are releasing larger specifications, particularly for alloy steel. Farming implement makers are steadily expanding their purchases of both soft steel and rail steel bars. Demand for bar iron, on the other hand, is only fair, and one local mill is down for a period of four days to resume Wednesday. The railroads, however, are counted on to enter the market for considerable quantities of bar iron shortly. Activity in fence posts continues to be a good source of rail steel business. Prices are substantially the same as a week ago, with soft steel possibly a bit stronger.

Mill prices are: Mild steel bars, 2.10c. to 2.15c.; common bar iron, 2.15c. to 2.20c., Chicago; rail steel, 2c., Chicago mill.

Jobbers quote 3c. for steel bars out of warehouse. The warehouse quotations on cold-rolled steel bars and shafting are 3.80c. for rounds and 4.30c. for flats, squares and hexagons; 4.15c. for hoops and 3.65c. for bands.

Jobbers quote hard and medium deformed steel bars at 2.25c. to 2.35c.

Wire Products.—Demand is encouraging, although actual specifications are not quite equal to those of last week. Most current tonnage is going directly into consumption, as middlemen do not find it necessary to lay in large stocks in view of excellent service from the mills. Nails, plain wire and manufacturing wire are all in larger volume. Manufacturing users are steadily expanding operations. Mill stocks are gradually being worn and meanwhile production averages 50 per cent. For mill prices see Finished Iron and Steel, f.o.b., Pittsburgh, page 540.

We quote warehouse prices f.o.b. Chicago: No. 6 to No. 9 bright basic wire, $3.70 per 100 lb.; extra for black annealed wire, 15c. net 100 lb.; common wire nails, $3.55 per 100 lb.; cement coated nails, $2.80 per keg.

Rails and Track Supplies.—The Chesapeake & Ohio has placed orders for 10,000 tons of rails, dividing the tonnage equally between local mills. A rail buying movement is believed imminent, inquiries for fully 250,000 tons being in sight. The New York Central, for example, contemplates asking for figures on 150,000 to 200,000 tons. Specifications against contracts are also liberal and the Gary mill, which has been idle for about two months, is scheduled to resume Sept. 2. The Norfolk & Western is inquiring for 12,000 tons of tie plates.

Standard Bessemer and open-hearth rails, $43; light rails, rolled from billets, 2.10c., f.o.b. makers' mill.

Standard railroad spikes, 2.80c. to 3c. mill; track bolts with square nuts, 3.80c. to 4c. mill; steel tie plates, 2.45c., f.o.b. mill; angle bars, 2.75c. f.o.b mill

Jobbers quote standard spikes out of warehouse at 3.45c. base, and track bolts, 4.45c. base.

Cold Finished Steel Bars.—Demand for cold finished steel bars and shafting shows some improvement, but prices are weaker, with 2.75c., Chicago, more commonly quoted. Some tonnage continues to be placed, however, at 2.80c.

Cast Iron Pipe.—Chicago has awarded 570 tons of 8-in. to the United States Cast Iron Pipe & Foundry Co. Norwood, Ohio, will take contractors' bids on 1600 tons of 4, 6, 8, 12 and 16-in., Sept. 2. Deshler, Ohio, will receive contractors' figures today on 400 tons of 4 to 10-in. Chicago will receive tenders on 100 tons of fittings, Aug. 29. The market has declined a dollar a ton, now ranging from $44 to $45, base, Birmingham, for 6-in. and larger.

We quote per net ton, f.o.b. Chicago, as follows: Water pipe, 4-in., $56.20 to $57.20; 6-in. and over, $52.20 to $53.20; Class A and gas pipe, $5 extra.

Bolts and Nuts.—Bolt prices are firmer and temporarily buying has subsided somewhat, following liberal purchases at lower figures. Demand for semi-finished nuts is still light owing to the failure of the automobile trade to buy in customary quantities. Bolt discounts appear to be increasingly steady on the basis of 60 and 20 per cent off, Chicago, for large machine bolts.

Jobbers quote structural rivets, 3.65c.; boiler rivets, 3.85c.; machine bolts up to ⅞ x 4 in., 60 per cent off; larger sizes, 60 off; carriage bolts up to ⅞ x 6 in., 55 off; larger sizes, 55 off; hot pressed nuts, squares and hexagons, tapped, $4 off; blank nuts, $4 off; coach or lag screws, gimlet points square head, 65 per cent off.

Old Materials.—A large independent mill has closed for 10,000 tons of heavy melting at $15.75 per gross ton delivered. A steel foundry has bought a round tonnage of low phosphorus grades at advancing prices and a malleable and steel castings manufacturer has contracted for both malleable and steel grades. Out of town demand has resulted in advances in both iron axles and locomotive tires. The market, as a whole, has a stronger tone, although it is still lacking in real buoyancy. Railroad offerings include the Burlington, 4900 tons, and the Big Four, a blind list.

We quote delivery in consumers' yards, Chicago and vicinity, all freight and transfer charges paid, as follows:

Per Gross Ton	
Iron rails	$17.50 to $18.00
Cast iron car wheels	17.50 to 18.00
Relaying rails, 56 and 60 lb.	26.00 to 27.00
Relaying rails, 65 lb. and heavier	27.00 to 32.00
Forged steel car wheels	18.75 to 19.25
Railroad tires, charging box size	18.75 to 19.25
Railroad leaf springs, cut apart	18.75 to 19.25
Rails for rolling	16.25 to 16.75
Steel rails, less than 3 ft.	18.00 to 18.50
Heavy melting steel	15.50 to 16.00
Frogs, switches and guards cut apart	15.50 to 16.00
Shoveling steel	15.00 to 15.50
Drop forge flashings	11.00 to 11.50
Hydraulic compressed sheets	13.00 to 13.50
Axle turnings	13.00 to 13.50
Steel angle bars	17.50 to 18.00
Steel knuckles and couplers	18.50 to 19.00
Coil springs	19.50 to 20.00
Low phos. punchings	17.00 to 17.50
Machine shop turnings	9.00 to 9.50
Cast borings	11.00 to 11.50
Short shoveling turnings	11.00 to 11.50
Railroad malleable	17.50 to 18.00
Agricultural malleable	16.00 to 16.50
Per Net Ton	
Iron angle and splice bars	17.00 to 17.50
Iron arch bars and transoms	18.00 to 18.50
Iron car axles	24.50 to 25.00
Steel car axles	18.00 to 18.50
No. 1 busheling	11.50 to 12.00
No. 2 busheling	8.25 to 8.75
Pipes and flues	10.50 to 11.00
No. 1 railroad wrought	14.00 to 14.50
No. 2 railroad wrought	13.75 to 14.25
No. 1 machinery cast	17.50 to 18.00
No. 1 railroad cast	17.00 to 17.50
No. 1 agricultural cast	17.00 to 17.50
Locomotive tires, smooth	16.50 to 17.00
Stove plate	14.00 to 14.50
Grate bars	15.00 to 15.50
Brake shoes	15.00 to 15.50

Iron and Steel in Canada

Figures of the Dominion Bureau of Statistics show a new low level in July with 45,480 tons of pig iron, compared with 56,963 tons in June. Total production for the seven months ended July 31 was 472,585 tons, which compares with 516,793 tons in seven months last year. Ferrosilicon to the amount of 2197 tons was produced in July against 2108 tons in June. For the seven months the total was 17,965 tons. The number of blast furnaces active in July was four, of a total of 20 in the Dominion.

July production of steel ingots and castings was 52,237 tons, a reduction of 24 per cent from the June output of 68,914 tons. For the seven months the production was 540,970 tons, compared with 551,000 tons in seven months last year.

Canadian production of pig iron and of steel ingots and castings over a period of 14 years is shown in the following table, the figures representing average monthly production throughout the year. For 1924, of course, the average is for seven months only.

Calendar Year	Pig Iron	Steel Ingots and Castings
1911	68,000	66,000
1912	75,000	71,000
1913	84,000	87,000
1914	58,000	62,000
1915	68,000	76,000
1916	87,000	106,000
1917	87,000	130,000
1918	89,000	140,000
1919	68,000	77,000
1920	81,000	92,000
1921	50,000	56,000
1922	32,000	40,000
1923	73,000	74,000
1924	67,000	77,000

New York

Large Rail Inquiry of New York Central—Some Fourth Quarter Pig Iron Sales

NEW YORK, Aug. 26.—Apart from two fairly large transactions, the pig iron market represents in the main buying in lots of 100 to 250 tons. Some of the smaller melters have had a fair amount of business and in some cases are connecting rather more frequently with furnace yards. One of the larger purchases was of 3750 tons of foundry iron by a New Jersey interest, delivery in the fourth quarter. The other was 3000 tons of foundry iron for the New York Air Brake Co., which has been in the market also for 1500 tons of off malleable for the same delivery. For the New York Central Frankfort shops an order for upward of 300 tons has been placed. A pump company is inquiring for 250 tons for its plant in the Cincinnati district. Buffalo producers now have less high silicon iron to offer than under ordinary conditions, and in a few cases furnaces selling in this market have put the differential between No. 2X and No. 1X iron at $1. While Eastern Pennsylvania furnaces are generally holding to $20.50 as base, one or two have been asking $21 and on the whole are conservatively firmer in their attitude. At Buffalo $19 to $19.50 represents the present range in the base price.

We quote delivered in the New York district as follows, having added to furnace price $2.27 freight from eastern Pennsylvania, $4.91 from Buffalo and $5.44 from Virginia:

East. Pa. No. 2, sil. 1.75 to 2.25	$22.27 to $22.77
East. Pa. No. IX fdy., sil. 2.75 to 3.25	23.27 to 23.77
East. Pa. No. 2X fdy., sil. 2.25 to 2.75	22.77 to 23.27
Buffalo, sil. 1.75 to 2.25	23.91 to 24.41
No. 2 Virginia, sil. 1.75 to 2.25	29.94 to 30.44

Ferroalloys.—So many rumors regarding the price at which ferromanganese has been selling in the past week make it difficult to arrive at definite market values. It is freely admitted that business has been done below the price prevailing a week ago of $95, seaboard basis. Just how much has been sold and at just what prices it is difficult to determine. It seems reasonable to believe that fairly good sales have been made at $92.50 and at $90, but it is stated that no more alloy is now available, at least from the British sellers, at less than $95. In view of the heavy buying in recent weeks demand now is not active. Something like 500 tons of spiegeleisen has changed hands in the last week at prevailing quotations.

Cast Iron Pipe.—A fair volume of private purchasing is reported on water pipe, but few municipal lettings in this district. Prices are inclined to develop weakness, as makers quote concessions. We quote per net ton, f.o.b. New York, in carload lots, as follows: 6-in. and larger, $56.60 to $57.60; 4-in. and 5-in., $61.60 to $62.60; 3-in., $71.60 to $72.60, with $5 additional for Class A and gas pipe. Stocks of soil pipe in makers' yards are still fairly large, while stocks in the hands of jobbers are estimated at about normal or less. As a result there is some tendency among makers to make concessions and sales at $2 to $3 per ton reduction are reported to have been made by some Northern makers. Operation is only about four days per week. We quote discounts of both Southern and Northern makers, f.o.b. New York, as follows: 6-in., 45 to 46¼ per cent off list; heavy, 55 to 56¼ per cent off list.

Warehouse Business.—The approach of Labor Day has evidently caused a slight decline in activity, but demand is still better on most products than in July. Prices are firm, except for occasional concessions made on large lots of material. Black sheets are not particularly strong and the minimum of 4.75c. per lb., base, is apparently also the maximum. On galvanized sheets, however, the market is stronger and in most cases the 5.75c. base seems to apply more to the larger lots from stock. Inquiries for structural material are still in fair volume, although for small tonnages. Purchasers of reinforcing bars have been active. An increased volume of business for export to Cuba and Central American markets is noted by some warehouses. Brass and copper products are up on a number of items ¼c. per lb. We quote prices on page 554.

Finished Iron and Steel.—The developments are these: The New York Central will issue inquiries before the end of the week for 150,000 to 175,000 tons of rails, ranging from 80 lb. to 127 lb. per yard, of the Dudley section. Inquiries for railroad equipment have materialized, chiefly in the West. Indications are that considerable bridge work will be bought in the coming months by the railroads. An approximation to the increased volume of business in August over the same period in July is that the tonnage of pipe is 10 per cent greater; that of sheets, 50 per cent greater; that of bars, nearly 100 per cent, and for all forms of finished steel, probably 75 per cent. The holiday absence of many responsible officials has held up many settlements in the current week, leaving much to be carried over into September.

We quote for mill shipments, New York delivery, as follows: Soft steel bars, 2.44c. to 2.49c.; plates, 2.04c. to 2.14c.; structural shapes, 2.34c. to 2.44c; bar iron, 2.34c. to 2.44c.

Coke.—The market continues to exhibit weakness and distress tonnages are still available, although it is claimed offers are less numerous. Standard foundry is quotable at $4.25 to $4.75 per ton for prompt shipment and standard furnace at $3.25 to $3.50 per ton. By-product is unchanged at $10.41, Newark and Jersey City, N. J.

Old Material.—Keen competition among brokers to secure tonnage to fulfill contracts with eastern Pennsylvania consumers has subsided, and, although buying prices on No. 1 heavy melting steel are substantially unchanged from those of a week ago, there is considerably less tendency to run the market up. The approach of Labor Day has caused some sellers to curtail buying activity to a minimum until after the holiday. Heavy melting steel is being bought at $16 to $17 per ton, delivered eastern Pennsylvania, depending upon the point of shipment. One eastern Pennsylvania consumer, who seldom rejects shipments, has recently been rejecting carloads of heavy melting steel where the material shipped was too light. Some of this has been taken in by other eastern Pennsylvania mills. Specification pipe is unchanged, shipments going forward to Milton at $16 per ton and to a Lebanon consumer at $16.50 per ton. The market on practically all grades is fairly firm but quiet, except for activity among brokers.

Buying prices per gross ton New York follow:

Heavy melting steel, yard	$13.00 to $13.50
Heavy melting steel, railroad or equivalent	14.00 to 14.50
Rails for rolling	14.50 to 15.00
Relaying rails, nominal	24.00 to 25.00
Steel car axles	17.50 to 18.50
Iron car axles	25.00 to 26.00
No. 1 railroad wrought	14.50 to 15.00
Forge fire	8.75 to 9.25
No. 1 yard wrought, long	13.50 to 14.00
Cast borings (clean)	9.50 to 10.00
Machine shop turnings	9.50 to 10.00
Mixed borings and turnings	7.50 to 8.00
Iron and steel pipe (1 in. diam., not under 2 ft. long)	12.25 to 12.75
Stove plate	11.50 to 12.00
Locomotive grate bars	11.50 to 12.50
Malleable cast (railroad)	14.00 to 14.50
Cast iron car wheels	14.50 to 15.00
No. 1 heavy breakable cast	12.50 to 13.00

Prices which dealers in New York and Brooklyn are quoting to local foundries per gross ton follow:

No. 1 machinery cast	$15.00 to $15.50
No. 1 heavy cast (columns, building materials, etc.), cupola size	13.00 to 13.50
No. 2 cast (radiators, cast boilers, etc.)	12.00 to 12.50

Building permits issued in 20 typical cities during July of this year amounted in round numbers to 139 million dollars, while the June valuation amounted to 170 million, a decrease of 31 million. However, New York and Chicago alone are responsible for this difference, according to the National Association of Building Trades Employers, Euclid Building, Cleveland.

Cincinnati

Fair Volume of Pig Iron Booked Largely by Northern Furnaces

CINCINNATI, Aug. 26.—More interest was shown in the pig iron market last week and a fair tonnage was booked. Buying was of both Northern and Southern brands. While there were some small sales of Northern iron at $20, the larger tonnages were booked on a basis equivalent to $19.50, Ironton, by Lake furnace interests. Included in the sales was one of 1200 tons of foundry and malleable grades to a central Ohio melter at $18.50, Lake furnace. We also note a sale of 500 tons of foundry at $19.50, Ironton. A Louisville, Ky., melter bought 1000 tons of Southern foundry iron at $17.50, base, Birmingham, while another melter divided 1000 tons of Southern among three furnaces at prices ranging from $17.50 to $18. For prompt shipment $17.50 can be done in Southern iron, though most of the furnaces are asking $18 to $18.50 for fourth quarter. Some sales of charcoal iron were made at $26, furnace, and carload orders for silveries at $1 below schedule were booked. There was no activity in basic or Bessemer grades. Inquiries continue light, but melters are more interested in the market at today's prices.

Based on freight rates of $4.05 from Birmingham and $2.27 from Ironton we quote f.o.b. Cincinnati:

Southern fdy., sil. 1.75 to 2.25 (base)	$21.55 to $22.05
Southern fdy., sil. 2.25 to 2.75	22.05 to 22.55
Southern Ohio silvery, 8 per cent	31.77
Southern Ohio fdy., sil. 1.75 to 2.25	21.77
Southern Ohio, basic	21.27
Southern Ohio malleable	21.77

Semi-Finished Materials.—An inquiry for 2000 tons of sheet bars was in the market last week, and it is reported that nothing less than $38, Pittsburgh, was quoted. The quotation on billets is also said to be steady at $38, Pittsburgh, but there have been reports of forging billets being offered at $42.

Sheets and Tin Plate.—Indications point to a stiffening in the price of blue annealed sheets, as on an inquiry last week for a small tonnage nothing less than 2.70c. was quoted. The bottom of the market for black sheets now appears to be 3.50c., with galvanized available at 4.50c. to 4.60c. Inquiry for tin plate has subsided somewhat, though it is still in demand. For automobile body sheets 4.75c. is now generally recognized as the bottom, and sales are being made at this price.

Structural Steel.—The Louisville & Nashville Railroad has awarded 2350 tons of bridge work, but with this exception the market has been rather quiet. Inquiries include an office building at Columbus, Ohio, 1500 tons; office building at Indianapolis, 600 tons; bridgework for the Hocking Valley Railroad, 300 tons, and a number of smaller buildings taking up to 100 tons.

Reinforcing Bars.—While there have been a number of fair-sized inquiries for reinforcing bars, little business has actually been placed. New plant of the Buckeye Products Co., Cincinnati, will take about 150 tons, and road work in Ohio and Kentucky, 300 tons. Frank Hill-Smith, Inc., has been awarded general contract for the erection of a seven-story building for the Crowell Publishing Co., Springfield, Ohio, involving approximately 800 tons. Bar prices are unchanged from last week, hard steel bars being quoted at 1.90c. to 2c, and new billet stock 2c. to 2.15c., depending on the attractiveness of the order.

Tool Steel.—A very slight improvement in demand is reported, but orders are small and for immediate delivery. Improvement is expected, however, following resumption of activities in a number of plants closed for annual vacation. Prices are steady at 70c. to $1 per lb. for 18 per cent tungsten high speed steel.

Finished Materials.—Slow but steady improvement continues, and while reports of lower prices are constantly being heard, there is no indication that on the small orders being placed, less than 2.15c. on bars, 2.05c. on shapes, and 2c. on plates has been done in this market. It is admitted, however, that on attractive tonnages concessions of from $1 to $2 per ton could be secured. There is little activity in the wire market, and prices are rather weak at $2.80 for wire nails, and $2.55 for plain wire. There is, however, a firmer tendency in pipe, largely due to the fact that some of the makers have been able to secure a backlog of orders. The largest transaction in pipe in this district for some time was the purchase of approximately 2500 tons by the Union Gas & Electric Co., Cincinnati. This order is reported to have been placed with a Pittsburgh independent maker. More inquiry is reported for track accessories, and there have been some small orders placed for light rails, but generally this market is inactive.

Warehouse Business.—Local jobbers continue to report improvement in the demand for iron and steel products, and sales during August will be ahead of either June or July. Prices are being maintained.

Cincinnati jobbers quote: Iron and steel bars, 3.30c.; reinforcing bars, 3.30c.; hoops, 4.35c.; bands, 3.95c.; shapes, 3.40c.; plates, 3.40c.; cold-rolled rounds, 4.05c.; cold-rolled flats, squares and hexagons, 4.55c.; open-hearth spring steel, 4.75c. to 5.75c.; No. 10 blue annealed sheets, 3.90c.; No. 28 black sheets, 4.60c.; No. 28 galvanized sheets, 5.75c.; No. 9 annealed wire, 3.30c.; common wire nails, $3.30 per keg base; cement coated nails, $3 per keg.

Coke.—There has been little activity though shipments are fairly good. Prices are steady and there will be no change from the $6.50, Connellsville basis, for by-product foundry coke for September shipment.

Connellsville furnace, $3; foundry, $4.50; New River foundry, $8.50; Wise County furnace, $3.75; foundry, $4.50; by-product foundry, $6.50, Connellsville basis.

Old Material.—The market is dead so far as sales of any consequence are concerned, but there has been small buying of carload lots. Prices continue steady and railroad lists generally brought higher prices than last month. Dealers are not disposed to take on large tonnages at present prices but are looking for advances within the next 30 days.

We quote dealers' buying prices, f.o.b. cars, Cincinnati:

	Per Gross Ton	
Heavy melting steel	$13.50 to	$14.00
Scrap rails for melting	12.00 to	12.50
Short rails	17.00 to	17.50
Relaying rails	28.50 to	29.00
Rails for rolling	14.00 to	14.50
Old car wheels	13.00 to	13.50
No. 1 locomotive tires	14.00 to	14.50
Railroad malleable	15.50 to	16.00
Agricultural malleable	14.00 to	14.50
Loose sheet clippings	8.50 to	9.00
Champion bundled sheets	10.50 to	11.00
Per Net Ton		
Cast iron borings	9.50 to	10.00
Machine shop turnings	8.50 to	9.00
No. 1 machinery cast	18.00 to	18.50
No. 1 railroad cast	14.50 to	15.00
Iron axles	21.00 to	21.50
No. 1 railroad wrought	10.50 to	11.00
Pipes and flues	7.50 to	8.00
No. 1 busheling	9.50 to	10.00
Mixed busheling	7.00 to	7.50
Burnt cast	10.50 to	11.00
Stove plate	10.50 to	11.00
Brake shoes	11.50 to	12.00

Buffalo

Pig Iron Higher, with Large Tonnage in Small Inquiries—Scrap Active

BUFFALO, Aug. 26.—Two Buffalo furnaces have taken advantage of the increased demand to stiffen their prices. Two of the others are out of the market. The furnaces now high on the market are quoting $19.50 base, one with a differential of $20 and $21 for 2.25 to 2.75 per cent silicon and 2.75 to 3.25 per cent silicon, and the other with a differential of $20 for 2.25 to 2.75 per cent silicon and $20.50 for 2.75 to 3.25 per cent silicon. No very large inquiries are before the market, but the total ranges between 20,000 and 25,000 tons. Several inquiries are for 1000 tons each, but the majority are for 500, 300 and 200 tons. The New York Air-Brake Co. is believed to have placed for its requirement, but the disposition is not known here. One local producer has sold a total of 9000 tons during the week. This furnace now has no iron available for August and September delivery over 2.75 per cent sili-

con, but believes it could obtain $1 more for these grades if any were available. The Donner Steel Co. expects to operate a second stack during the present week, producing foundry iron.

We quote prices f.o.b. gross ton, Buffalo, as follows:

No. 2 plain, silicon, 1.75 to 2.25..	$19.50
No. 1 foundry, sil. 2.75 to 3.25..$20.50 to	21.00
No. 2 foundry, sil. 2.25 to 2.75.. 19.50 to	20.00
Malleable, up to 1.75 sil.....	19.00
Malleable, sil. 1.75 to 2.25.....	19.50
Malleable, sil. 2.25 to 2.75.....	20.00

Finished Iron and Steel.—Wire and bars show an improvement over July business and, in general, business is better. Jobbers are specifying a little more frequently and most mills believe the turn has been negotiated. Wire nails are quoted at 2.85c., with some figures of 2.80c. being made, and plain wire is 2.60c., Pittsburgh. This price has been shaded to some extent, but not largely. Bars are firm at 2.15c. and reinforcing has been increased 15c. a ton on stock shipment, making the price 2.30c. Among the jobs which have been placed in reinforcing are 350 tons for the Liberty Bank and a garage which totaled between 300 and 400 tons. Sheets are firm, with 3.50c. being quoted on black. Plates are slow, with Eastern mills quoting around 2c. and making competition almost impossible. Structural steel fabricators report business somewhat better. The Binghamton city hospital was placed with a local fabricator and some sizable transmission tower business has been placed.

Steel bars, 3.30c.; iron bars, 3.35c.; reinforcing bars, 3.30c.; structural shapes, 3.40c.; plates, 3.40c.; No. 10 blue sheets, 4.05c.; No. 28 black sheets, 4.75c.; No. 28 galvanized sheets, 5.85c.; bands, 4.05c.; hoops, 4.40c.; cold finished rounds, 4.20c.; cold-finished shapes, 4.70c.

Old Material.—Continuance of the good feeling prevalent last week is noted, though the market activity principally is made up of dealers' transactions. While the market has improved, many hold that it has jumped ahead out of proportion to the actual pick-up in business, and mills are inclined to think it will sag shortly to its legitimate level. Dealers are buying heavy melting steel extensively in connection with old orders, but mills will not pay the higher prices this movement has caused. One mill buyer states that heavy melting steel is being picked up around $15 and tonnage could be acquired at $16.50. Dealers say tonnage would cost $17. Mill operation has increased somewhat, one large interest now operating eight open-hearths in place of four, but this interest is using considerably more hot metal than usual, cutting down its consumption of scrap. Busheling is being purchased at $14.50 to $15 and good automobile flashings around $15.

We quote f.o.b. gross ton, Buffalo, as follows:

Heavy melting steel.....$16.00 to	$17.00
Low phosphorus, 0.04 and under 19.00 to	19.50
No. 1 railroad wrought..... 15.00 to	15.50
Car wheels ..... 15.50 to	16.00
Machine shop turnings..... 11.50 to	12.50
Cast iron borings..... 12.00 to	12.50
No. 1 busheling ..... 14.50 to	15.50
Stove plate ..... 16.00 to	16.50
Grate bars ..... 15.00 to	15.50
Bundled sheets ..... 12.00 to	12.50
Hydraulic compressed ..... 15.50 to	16.00
Railroad malleable ..... 17.00 to	18.00
No. 1 machinery cast..... 17.00 to	18.00

Old Material Market in Detroit

DETROIT, Aug. 26.—Bids are being taken by a local automobile plant on a list of old material involving about 6000 tons of miscellaneous grades, principally borings, short turnings and hydraulic compressed. Awards will be made at the end of the week and will establish prices definitely on these grades. Automobile cast continues strong, but some of the other grades, which require preparation, are in light demand and are being stocked by certain producers rather than marketed at present prices. Prices show no material change from last week.

Bethlehem Fabricators, Inc., Bethlehem, Pa., is distributing to its customers a pocket size folder giving the Presidential vote from 1828 to 1920, inclusive. The folder contains a blank page for guesses as to the outcome of the electoral vote in the approaching election.

Birmingham

Pig Iron Outlook More Promising—Steel Movement Improved—Pipe Active

BIRMINGHAM, Aug. 26.—Inquiries for pig iron which promise to result in orders for larger tonnages than for some time is the encouraging feature of the Southern pig iron market, report having it that 10,000 tons has been taken by a sanitary manufacturing company for delivery in last quarter into Kentucky and just through the Ohio River gateway. Another order for 5000 tons has been discussed. The larger melters of the home territory are said to be considering a tonnage of iron to run them through the year and into 1925, but little is being said as to the larger local business under negotiation. Many small-lot orders still obtain and the aggregate recently has been up around the output. The melt and deliveries, however, show a slight difference in this comparison. Quotations are ranging from $17.50 to $18.50 per ton, the smaller interests holding to $18 and $18.50 per ton, No. 2 foundry, the highest price being on iron being shipped from the territory. Many of the smaller melters are buying in small quantities with delivery as quickly as it can be accomplished. In some instances iron is loaded on railroad cars the day orders are received. The radiator plant in this district has resumed full operation again after a week's readjustments and necessary repairs. The various pipe shop requirements are being met promptly, the larger plants still having some iron due them on old contracts. Some inquiries have come to light again from the St. Louis and Chicago territories, while the Cincinnati territory has been a little more liberal. The pig iron market during the first two weeks of this month lagged considerably. Readjustment of production talk was prominent. Stove interests report improvement in their trade.

We quote per gross ton, f.o.b. Birmingham district furnace as follows:

No. 2 foundry, 1.75 to 2.25 sil....$17.50 to	$18.00
No. 1 foundry, 2.25 to 2.75 sil.... 18.00 to	18.50
Basic ..... 18.50 to	19.00
Charcoal, warm blast ..... 30.00 to	31.00

Cast Iron Pipe.—With the understanding that there is undoubtedly much work planned for this summer which will have to start at once if it is to be completed before winter weather, cast iron pipe interests feel sure of the steadiness of their market through the balance of the year. Lettings during the past week amounted to a larger tonnage than is manufactured. Despite reports that some concessions have been made in pipe prices, reports of authoritative nature are that practically the same quotations as for some weeks are still in effect, 6-in. and over class B pipe selling at $47 in car lots and $48 under car lots, while the 4-in. and over commands $51. Soil pipe quotations are below $50 for the standard cast iron soil pipe but there has been some improvement in demand, the call for pig iron picking up some.

Steel.—Heavier and steadier movements of steel are to be noted and a little improvement is announced in wire and nails, though the market here is nothing like it was the first of the year. Rail is moving steadily from the mills of the Tennessee company at Ensley, those railroads having cars built in the district using these new cars in hauling off rail. The two tank-making plants are still calling for plate, the Welded Products Co., J. A. Deacon president, announcing contracts which will keep his plant going for five months, part of the time day and night. The county engineer has been requested to make changes in sewer lines at Gate City, a portion of the city of Birmingham, for the purpose of permitting a new steel fabricating plant to be erected. The nature of the plant will be made public later. Steel bars are quoted at 2.30 to 2.40c.

Coke.—With quotations down to $4.50 to $5.50 per ton, the coke market shows little activity. There is more confidence in this line, however. By-product coke output has been readjusted lately, but one independent producing company, the Alabama By-Products Corporation, holding up its make right along. Bee-hive coke

production has not been reduced in the last week but the market is being watched closely as to the amount of the product needed. All by-products of coal other than coke are reported strong, good market being found.

Scrap.—Activity in the scrap iron and steel market is still with the old steel materials. Dealers are booking some little business, though heavy melting steel hardened some when the advance was announced. None of the old material dealers are booking long time contracts and opinion is expressed that there will be some need for scrap yet this year. The low price of iron still affects the iron scrap. Preparation of scrap is noticeable in yards of the more prominent dealers. Inquiries are being received as to scrap, but no special business is anticipated.

We quote per gross ton f.o.b. Birmingham district yards as follows:

Cast iron borings, chemical	$15.00 to $16.00
Heavy melting steel	12.50 to 13.00
Railroad wrought	12.00 to 13.00
Steel axles	17.00 to 18.00
Iron axles	19.00 to 19.50
Steel rails	12.50 to 13.00
No. 1 cast	15.00 to 16.00
Tram car wheels	15.00 to 16.00
Car wheels	14.00 to 15.00
Stove plate	14.00 to 15.00
Machine shop turnings	6.00 to 7.00
Cast iron borings	7.00 to 8.00
Rails for rolling	15.00 to 16.00

St. Louis

Old Material Higher—Foundry Coke Active—Pig Iron Dull

ST. LOUIS, Aug. 26.—Sales of pig iron have been rather light, but the market is firm. It is expected that there will be a heavier movement within the next week or so. Foundries in the district are doing more business and the larger plants are advertising for skilled labor. There is generally a better feeling among both melters and makers as to the future. The St. Louis Coke & Iron Co. sold about 1000 tons, of which a radiator corporation took 350 tons. An East Side concern bought 200 tons of Southern iron at $17.50, Birmingham. The principal inquiry is for 3500 to 4000 tons of foundry iron for a Missouri melter. An Illinois melter wants 2500 to 3000 tons of foundry grades, and an Indiana company is inquiring for prices on 1500 to 2000 tons of foundry. The market is unchanged.

We quote delivered consumers' yards, St. Louis, as follows, having added to furnace prices $2.16 freight from Chicago, $3.28 from Florence and Sheffield (rail and water), $5.17 from Birmingham, all rail, and 81c. average switching charge from Granite City:

Northern fdy., sil. 1.75 to 2.25	$21.16 to $21.56
Northern malleable, sil. 1.75 to 2.25	21.16 to 21.56
Basic	21.16
Southern fdy., sil. 1.75 to 2.25 (rail)	23.17 to 23.67
Southern fdy., sil. 1.75 to 2.25 (rail and water)	21.28 to 21.78
Granite City iron, sil. 1.75 to 2.25	21.81 to 22.31

Finished Iron and Steel.—The principal transaction was the placing of an order for 1200 tons of reinforcing bars with the Laclede Steel Co. for the Municipal Waterworks. Laclede also got the contract for reinforcing bars for the Metropolitan Theater, St. Louis. A decided improvement is reported in the demand for all lines, with the exception of sheets, which are still dragging. Sales and inquiries are not for large units and buyers are conservative, but the volume of business being placed is regarded as gratifying. The market is holding firm, and sales are being made at the full market price.

For stock out of warehouse we quote: Soft steel bars, 3.35c. per lb.; iron bars, 3.35c.; structural shapes, 3.45c.; tank plates, 3.45c.; No. 10 blue annealed sheets, 4.10c.; No. 28 black sheets, cold-rolled, one pass, 5c.; cold rolled rounds, shafting and screw stock, 4.15c.; structural rivets, 3.90c.; boiler rivets, 4.10c.; tank rivets, ⅞-in. and smaller, 60 per cent off list; machine bolts, 55 and 5 per cent; carriage bolts, 40 and 5 per cent; lag screws, 60 and 5 per cent; hot pressed nuts, squares or hexagons, blank or tapped, $3.50 off list.

Coke.—There is an improvement in the demand for foundry coke, and some good-sized contracts are being placed. The St. Louis Coke & Iron Co. has just closed a contract to deliver 800 tons over the remainder of the year to an Illinois stove company and an Iowa consumer bought 400 tons for shipment through the last quarter. There is very little demand for domestic coke and dealers still hold off in their purchases.

Old Material.—The market for old material continues to advance. The consumers in the district are getting more business on their books, and they are negotiating with dealers for material. Stocks in hands of dealers are said to be low and the competition to get material is keen. The increases range from 50c. to $2 per ton. Steel and foundry grades have been most in demand, although within the last week there has been some call for rolling mill items. New railroad lists include: Baltimore & Ohio, 11,000 tons; Chicago, Burlington & Quincy, 5000 tons; Canadian Pacific, 6500 tons of 50 to 72-lb. relaying rails, and Big Four, 3000 tons of 52 to 70-lb. relaying rails.

We quote dealers' prices f.o.b. consumers' works, St. Louis industrial district and dealers' yards, as follows:

Per Gross Ton	
Iron rails	$14.00 to $14.50
Rails for rolling	17.50 to 18.00
Steel rails less than 3 ft.	19.00 to 19.50
Relaying rails, 60 lb. and under	25.00 to 26.00
Relaying rails, 70 lb. and over	32.50 to 33.50
Cast iron car wheels	16.50 to 17.00
Heavy melting steel	15.00 to 15.50
Heavy shoveling steel	15.00 to 15.50
Frogs, switches and guards cut apart	17.00 to 17.50
Railroad springs	20.00 to 20.50
Heavy axles and tire turnings	11.50 to 12.00
No. 1 locomotive tires	17.00 to 17.50
Per Net Ton	
Steel angle bars	16.00 to 16.50
Steel car axles	19.00 to 19.50
Iron car axles	24.00 to 24.50
Wrought iron bars and transoms	17.50 to 18.00
No. 1 railroad wrought	13.00 to 13.50
No. 2 railroad wrought	14.00 to 14.50
Cast iron borings	9.25 to 9.75
No. 1 busheling	11.50 to 12.00
No. 1 railroad cast	17.00 to 17.50
No. 1 machinery cast	17.50 to 18.00
Railroad malleable	14.00 to 14.50
Machine shop turnings	7.00 to 7.50
Champion bundled sheets	7.50 to 8.00

Boston

Pig Iron Values Tending Upward, While Inquiry Is Diminishing

BOSTON, Aug. 26.—Pig iron values are gathering strength, while inquiry is diminishing. Eastern Pennsylvania and Buffalo prices still have a long way to go before reaching Virginia and Alabama delivered levels. Early the past week No. 2X eastern Pennsylvania sold in a small way at $20.25, furnace, or $23.90, delivered. The same iron today is $24.10, delivered. In this case silicon differentials are disregarded. A small tonnage of No. 2X more or less special analysis iron is obtainable at $24.15, delivered. On regular analysis $25.65, delivered, is the more general quotation. The most active Buffalo furnace in this territory has advanced silicon 1.75 to 2.25 and silicon 2.25 to 2.75, for the balance of 1924 shipment, 50c. a ton to $19.50 and $20, furnace, respectively. No. 1X, balance of third quarter shipment, is $21.50, furnace, and fourth quarter shipment $1 a ton more. One Buffalo furnace, however, the past week offered No. 2 plain and No. 2X at $19, furnace. India iron, prompt shipment, sold within a day or so at $24.25, delivered Massachusetts consuming point for No. 2X and No. 1X, or approximately $21 on dock Boston, duty paid. Imports of India iron the past week were 502 tons.

We quote delivered prices on the basis of the latest reported sales as follows, having added $3.65 freight from eastern Pennsylvania, $4.91 from Buffalo, $5.92 from Virginia and $9.60 from Alabama:

East. Penn., sil. 1.75 to 2.25	$24.15 to $25.15
East. Penn., sil. 2.25 to 2.75	24.65 to 25.15
Buffalo, sil. 1.75 to 2.25	23.91 to 24.41
Buffalo, sil. 2.25 to 2.75	24.41 to 24.91
Virginia, sil. 2.25 to 2.75	30.42 to 31.42
Alabama, sil. 1.75 to 2.25	27.60

Cast Iron Pipe.—The usual pre-Labor Day apathy is noted in the cast iron pipe market. There are, however, some sizable private inquiries, details regarding

which are lacking. Framingham, Mass., has placed a few cars of 6-in. stock with the Donaldson Iron Co., the largest public offering the past fortnight. Unless all signs fail, September will witness a marked improvement in business. Most pipe makers are sold ahead on small sizes through October and November. Large pipe business is wanted, consequently price concessions are obtainable. Quotations follow. F.o.b. Boston common rate points, 6-in. to 12-in., inclusive, $62.10 per ton; 16-in. and larger, $60.10 to $61.10 per ton. The usual $5 differential is quoted on Class A and gas pipe.

Finished Material.—August bookings by local steel mill representatives will be smaller than July, in some instances 50 per cent. The price situation is mixed. Some of the large mills are talking firmer prices, while others anticipate still further concessions. The market for plates generally is 1.75c., Pittsburgh base, although 1.70c. has been done recently. Shapes are mostly held at 2c., with small sales reported at 1.90c. Bars are 2.10c., Pittsburgh base, and in limited demand. No large structural steel projects developed the past week. Fabricators continue to figure on a close margin. The New London Ship & Engine Co. is in the market for 500 tons of bars, shapes and plates, mostly plates. The movement of iron and steel out of warehouses, heretofore showing signs of improving, has suffered a setback. Warehouse prices follow:

Soft steel bars, $3.26½ base per 100 lb.; flats, $4.15; concrete bars, $3.51½ to $3.64; structural steel, $3.36½; tire steel, $4.50 to $4.75; open-hearth spring steel, $5 to $10; crucible spring steel, $12; steel bands, $4.01½ to $5; hoop steel, $5.50 to $6; cold rolled steel, $4.15 to $4.65; toe calk steel, $6; refined iron bars, $3.26½; best refined bars, $4.60; Wayne, $5.50; Norway, $6.60 to $7.10; plates, ¼-in. and heavier, $3.36½; No. 10 blue annealed sheets, $4.16½; galvanized sheets, $6 base; black sheets, $5 base.

Coke.—Additional specifications against contracts indicate the movement of by-product foundry coke from New England ovens to consumers this month will show a sizable increase over July. As yet, however, there has been little disposition among foundries to prepare for winter. Competition from outside coke makers is negligible, especially from the Connellsville district. New England ovens are making more prompt deliveries than heretofore. Both the New England Coal & Coke Co. and the Providence Gas Co. continue to quote by-product foundry coke at $11.50 a ton, delivered in New England.

Old Material.—Prices on heavy melting steel, specification pipe, rolling mill borings, forged scrap and bundled skeleton average 50c. a ton higher on this market. The advance is based more on the trend of prices outside New England than to any appreciable increase in local demand. Boston brokers are buying small tonnages only, mostly for eastern Pennsylvania shipment. Two New England steel mills still require heavy melting steel, for which brokers are paying $12.50 on cars. Consumers in this territory otherwise evince little interest. Foundries, however, continue to supply their cast requirements from local sources at less than brokers can sell. To illustrate, a Fitchburg, Mass., foundry the past week bought cotton machinery cast at $17 a net ton, delivered, whereas the best a Boston broker can do is $20.25 or $20.50. For 78 cars of miscellaneous material just sold by the Boston & Maine Railroad prices received averaged 50c. a ton higher than regular market quotations. Bids close today on 1550 tons of miscellaneous material to be sold by the Boston Elevated Railway, the largest item being 1000 tons girder rails.

The following prices are for gross ton lots delivered consuming points:

No. 1 machinery cast	$19.50 to $20.00
No. 2 machinery cast	16.50 to 17.00
Stove plates	15.00 to 15.50
Railroad malleable	17.00 to 17.50

The following prices are offered per gross ton lots, f.o.b. Boston rate shipping points:

No. 1 heavy melting steel	$12.00 to $12.50
No. 1 railroad wrought	13.50 to 14.00
No. 1 yard wrought	12.50 to 13.00
Wrought pipe (1-in. in diam., over 2 ft. long)	11.75 to 12.25
Machine shop turnings	8.50 to 9.00
Cast iron borings, chemical	10.00 to 10.50
Cast iron borings, rolling mill	9.00 to 9.50
Blast furnace borings and turnings	8.00 to 8.50
Forged scrap and bundled skeleton	9.00 to 9.50
Shafting	18.50 to 19.00
Street car axles	18.50 to 19.00
Rails for rolling	13.50 to 14.00

San Francisco

Pacific Coast Market Continues Dull

SAN FRANCISCO, Aug. 20.—Local business in steel and iron continues dull and devoid of interesting features. In a general way the situation is substantially the same as two weeks ago. Prices are low but that fact fails to awaken any increase in activity on the part of the buying element; in fact the trade has settled down to a belief that little improvement in values can be looked for on this coast until the Eastern markets develop a clearly defined undercurrent of strength, more general in character than the slight betterments recently noted in two or three of the Eastern trade centers. There has been some falling off in exports of finished goods during the last month, but this is not unusual at this time of the year. This opinion is doubtless over-emphasized, however, because of decreased shipments to Japan, but the lessened movement in that direction is attributable to other causes which apply to California alone. There have been several large awards on contracts for structural steel during the last two or three weeks, involving some 5200 tons and demands for as much more are already in sight for the next few weeks. Plans are nearly complete for three new apartment houses in this city which will require over 2100 tons of steel, while two big factories and a hotel in Oakland will require about 2600 tons. A new Methodist church in Berkeley, to cost over $300,000, the new refrigerating plant of the Union Ice Company at Watsonville to cost $600,000, the new office building of the Pacific Telephone and Telegraph Company in Berkeley to cost $600,000, and the new Masonic Temple at San Rafael will all shortly be in the market for structural steel which will amount to a considerable tonnage.

Pig Iron.—Outside of the deliveries on existing contracts but little new business materialized during the past week, but there are several inquiries involving about 1600 tons which, it is expected, will be booked within a few days. Buyers realize the keen competition between importers and show hesitancy in placing orders, evidently expecting still further reductions in prices, but in this they will probably be disappointed for the market shows a stronger tone this week with prices held more firmly. The demand for French and Belgian iron is today better than a week ago and the price is a trifle higher. Importers are now asking $25.50 to $26.50 per ton and the figures are not being shaded. Several cargoes are on the way and inquiries indicate they will be sold prior to arrival. Sales of English and Scotch iron are fair considering the dullness and prices are about the same as two weeks ago, $28 to $29 per ton delivered. Tonnage on the way is moderate.

Coke.—Buying is confined to small quantities and prices show no material variation from two weeks ago. The few sales being made are at $18 although some purchasers say they can obtain a 50 cent concession from this figure. Sellers say nearly all orders are for immediate delivery and booking orders for future delivery is practically at a standstill. Two cargoes are reported as on the way but they will not arrive before the middle of next month. Supplies on hand are ample for all present needs. The demand for domestic coke is very small for the time being.

Finished Steel and Iron.—Scarcely any change is noticeable in the general trade situation as compared with two weeks ago. Prices continue low and in some lines there is notable weakness. Merchant bars are meeting with a little better inquiry with prices held fairly steady. The Universal plate mill of the Pacific Coast Steel Co. at Seattle is now making plates up to 20 in. wide. Prices range from 2.35c. to 2.40c., c.i.f., depending on quantity ordered. Shapes show a little firmness, the price ranging from 2.45c. to 2.50c., with the bulk of the business at the latter figure. Rivets and nuts are selling quite well although business is confined to small parcels. Prices are well sustained. Sales of wire and nails show some improvement in volume

and prices remain quite steady. Recent shipments to the North have been larger than for several months.

Old Material.—Mills and foundries are purchasing very sparingly and the small quantities moving are unimportant. For heavy melting steel the present quotation is around $10.50 to $11 but a round lot could probably be obtained at $10, while some say that figure can be slightly shaded. Advices from Los Angeles indicate a very dull market there with the quotation under the San Francisco price by at least $1 per ton. Several carloads of scrap have come to hand from the interior but they were undesirable and were sold in small lots at nominal figures. There is no tonnage on the way from South America at present.

Philadelphia

Erratic Prices Check Forward Steel Buying—Pig Iron Steady

PHILADELPHIA, Aug. 26.—Moderate improvement in steel buying continues, but the market this week is without definite signs of the larger buying which must come before there can be any substantial betterment. Prices are still erratic enough to cause some hesitation among buyers, and the policy of covering for short periods is the governing one with nearly all buyers. Buyers are probably less inclined to urge concessions than was the case a month or two ago, but some of the mills, eager for orders, have supplied the initiative in price reductions, as, for example, on bars, which had held quite steadily at 2.15c., Pittsburgh, until a week or two ago, when one mill sent out quotations of 2.10c. to several large Eastern buyers, with the result that the bar price was reduced by all mills to 2.10c. within a few days. Likewise on plates further concessions have been offered and some of the larger lots of the past week have been taken at 1.70c., Pittsburgh, a drop of $1 a ton from the prices prevailing in the preceding week. Further concessions have appeared also on shapes, and cuts from 2c., Pittsburgh, are slightly more frequent.

This lack of strength in the price situation is undoubtedly holding back some business, although it may be said that orders have shown a consistent gain with nearly all mills in the past few weeks. The week before a holiday is usually one of dullness and this week is no exception. With Labor Day over, the mills look for a further pick-up in business, although it is not apparent right now where it will spring from unless the railroads enter the market more freely for steel, as it is intimated they may do.

Pig Iron.—The pig iron market is steady but not strong. Prices are being more firmly established at $20.50, furnace, for foundry iron of 1.75 to 2.25 per cent silicon. All active furnaces are now quoting this price and there is less talk of concessions. Only moderate tonnages are being purchased. Consequently the prices now quoted have had no severe test. In all probability buyers will, for fourth quarter, find that the furnaces are less likely to make concessions than was the case a few weeks ago, as some of them are not anxious for more tonnage than they now have on their books at the prices prevailing. One furnace will probably advance to $21, furnace, for the base grade. A Virginia pipe company is reported to have bought 5000 tons of Alabama iron. Although several Virginia furnaces submitted quotations, their delivered prices were higher than that on Alabama iron.

The following quotations are, with the exception of those on low phosphorus iron, for delivery at Philadelphia and include freight rates varying from 76c. to $1.63 per gross ton:

East. Pa. No. 2 plain, 1.75 to 2.25 sil.	$21.26 to $22.13
East. Pa. No. 2X, 2.25 to 2.75 sil.	21.76 to 22.63
East. Pa. No. 1X	22.26 to 23.13
Virginia No. 2 plain, 1.75 to 2.25 sil.	28.17 to 28.67
Virginia No. 2X, 2.25 to 2.75 sil.	28.67 to 29.17
Basic delivered eastern Pa.	20.00 to 21.00
Gray forge	21.00 to 22.00
Malleable	22.00 to 22.50
Standard low phos. (f.o.b. furnace)	24.00 to 25.00
Copper bearing low phos. (f.o.b. furnace)	24.00 to 25.00

Ferroalloys.—The leading domestic maker of ferromanganese has taken orders for several thousand tons at $90 per ton, furnace, a decline of $5 from the price quoted the week before. This interest withdrew the $90 price as soon as it had taken all of the business it wanted and is now quoting $95, furnace. No intimation has come from England as to what producers there will do to meet the situation, their present quotation being $95, duty paid, Atlantic port.

Billets.—Sales of open hearth re-rolling billets have been made at $37, Pittsburgh, and forging billets have been sold at $42, Pittsburgh. These prices are $1 a ton below those recently prevailing.

Plates.—Orders are coming to Eastern mills at about the rate of the last two or three weeks, with a slight improvement in demand noted in some quarters. Prices have not strengthened, however, and, in fact, a further concession of $1 a ton has been given by some mills on the more desirable lots. Small lots are being sold at 1.75c. to 1.80c., Pittsburgh, but the larger lots have not brought above 1.70c. For shipment to the Pacific Coast, plates have gone so low that several of the Eastern mills are not even interested in quoting. At 2.35c., delivered Pacific ports, the net to Eastern mills is not above 1.80c., f.o.b. mill. An unusual inquiry was for 25 extra wide locomotive plates from Germany.

Structural Material.—There has been a slight easing in the demand for structural shapes in the past week, and prices are not quite so firm as they were. The mills had got many buyers to accept 2c., Pittsburgh, as the market, but concessions of at least $1 a ton have been granted recently to stimulate laggard buying. No decision has yet been reached on the Penn Athletic Club, Philadelphia, requiring about 4500 tons. The Liberty Title & Trust Co. building, requiring 2000 tons of steel, has been awarded to a general contractor, but no award of the fabricated steel has been reported. Most of the pending projects are small. Mills are averaging a 50 to 65 per cent operation, with one mill running full one single turn.

Bars.—Steel bars have weakened, due to offers by one mill at 2.10c., Pittsburgh, resulting in a general reduction to this level. A fair amount of business in both merchant and reinforcing steel has been taken by the mills at this price in the past week. Some of the current bar orders are running to 200 or 300 tons, which is more than buyers were willing to take a few weeks ago. Bar iron is weaker, and on the larger lots 2c., Pittsburgh, is now being freely quoted.

Sheets.—In sheets there is a moderate degree of firmness compared with the erratic prices of some weeks ago. Black sheets are fairly steady at 3.50c., and blue annealed orders are being freely taken at 2.70c. Quotations of 4.50c. on galvanized may not have altogether disappeared, but a good many of the orders are being taken at 4.60c.

Warehouse Business.—Prices on steel products out of stock are unchanged and for local delivery are as follows:

Soft steel bars and small shapes, 3.22c.; iron bars (except bands), 3.22c.; round edge iron, 3.50c.; round edge steel, iron finished, 1½ x ½ in., 3.50c.; round edge steel planished, 4.30c.; tank steel plates, ¼ in. and heavier, 3.32c.; tank steel plates, ⅜ in., 3.47c.; blue annealed steel sheets, No. 10 gage, 3.75c.; black sheets, No. 28 gage, 4.75c.; galvanized sheets, No. 28 gage, 5.85c.; square twisted and deformed steel bars, 3.22c.; structural shapes, 3.32c.; diamond pattern plates, ¼-in., 5.30c.; ⅜-in., 5.50c.; spring steel, 5c.; round cold-rolled steel, 4.15c.; squares and hexagons, cold-rolled steel, 4.65c.; steel hoops, 1 in. and wider, No. 20 gage and heavier, 4.10c.; narrower than 1 in., all gages, 4.60c.; steel bands, No. 12 gage to ⅛ in., inclusive, 3.97c.; rails, 3.35c.; tool steel, 8.50c.; Norway iron, 7c.

Old Material.—As is often the case when scrap prices advance sharply within a short period, there has been a slight reaction in the market. This is in part due to the fact that most of the mills are satisfied for the present, and there is little buying this week except by brokers, and also to a feeling among both consumers and brokers that possibly the advance of the past two weeks had been pushed a little too hard. To a certain degree the eastern Pennsylvania market has got ahead of the Pittsburgh market, and until there is further strength at Pittsburgh this market may not

take on renewed strength, although one mill paid $18 week before last for a considerable tonnage, other mills are not willing that high and the market on steel scrap this week is largely governed by what brokers are willing to pay to fill their orders. Trade is also quieter in the various grades used by foundries, rolling mills and forges and prices on some grades are easier.

We quote for delivery at consuming points in this district as follows:

No. 1 heavy melting steel	$17.00 to $18.00
Scrap rails	17.00 to 18.00
Steel rails for rolling	19.00 to 19.50
No. 1 low phos., heavy 0.04 and under	21.00 to 21.50
Couples and knuckles	19.00 to 20.00
Rolled steel wheels	19.00 to 20.00
Cast-iron car wheels	18.00 to 18.50
No. 1 railroad wrought	19.00 to 20.00
No. 1 yard wrought	17.00 to 17.50
No. 1 forge fire	14.50 to 15.00
Bundled sheets (for steel works)	14.00 to 14.50
Mixed borings and turnings (for blast furnace use)	12.50 to 13.00
Machine shop turnings (for steel works use)	14.00 to 14.50
Machine shop turnings (for rolling mill use)	14.00 to 14.50
Heavy axle turnings (or equivalent)	16.50 to 17.00
Cast borings (for steel works and rolling mills)	14.00 to 14.50
Cast borings (for chemical plants)	15.00 to 15.50
No. 1 cast	18.50 to 19.00
Heavy breakable cast (for steel plants)	17.00 to 17.50
Railroad grate bars	15.50 to 16.00
Stove plate (for steel plant use)	15.50 to 16.00
Wrought iron and soft steel pipes and tubes (new specifications)	16.50 to 17.00
Shafting	25.00 to 25.50
Steel axles	24.00 to 25.00

Imports.—Included in the imports at Philadelphia last week were 7378 tons of iron ore from Sweden; 2000 tons of chrome ore from British India; 500 tons of pig iron from England; 18 tons of bars from Sweden, and 15 tons of scrap steel from England.

Cleveland

Price Readjustment Not Ended, but Outlook More Favorable

CLEVELAND, Aug. 26.—Moderate improvement continues in pig iron, on which the prices are firmer and the outlook more favorable, and also in nearly all kinds of finished materials, particularly sheets, on which ragged prices are being smoothed out as demand improves. That the general readjustment downward has not ended is shown, however, in the case of cap and set screws, on which discounts were today largely increased owing to the very active competition which has developed. It is worthy of note that when price concessions on sheets and plates were recently made, unusual conditions frequently prevailed. The price cutting on plates was often when sales involved very large extras ranging from $3 to $10 per ton, as for example, in the case of locomotive fire box steel. Period contracts for structural steel for bridges amounting to about 5000 tons, on which fabricators in northern Ohio have been figuring, have been awarded but nearly all the fabricating will be done outside of this State. An exception is a Louisville & Nashville bridge to be built near New Orleans, for which the fabricating will be done by the Mount Vernon Bridge Co., Mount Vernon, Ohio.

Pig Iron.—In the immediate Cleveland district, the demand for pig iron during the past week has not been very active, but Cleveland agencies selling in the Valley and along the Lakes report a very fair volume of business pending, amounting in the Valley to between 15,000 and 20,000 tons, while prices show more firmness. The 50c. advance on foundry and malleable iron announced last week by two leading producers in this territory having Lake and Valley furnaces now seems to be general and the prevailing quotations are $20, furnace, for outside delivery and $20.50, furnace, for local delivery. One firm declined an offer of $19.50, furnace, for outside delivery of about 6000 tons foundry grades. Cleveland companies report they have had no trouble in selling on a basis of $20, Valley, for No. 2 foundry, $19.50, Buffalo, and $20, Detroit. It is not certain, however, that the higher schedule is rigidly adhered to in all cases and foundrymen claim that they can buy higher silicon irons on a basis which would indicate that the usual differentials are not being maintained, if $20.50 is being paid for No. 2 foundry for local delivery. The demand for Bessemer, which has been extremely dull, is showing a little activity and there are two inquiries pending, one for 400 tons and another for 500 tons. One company is holding to $21, Valley, but $20.50 has been the usual quotation. Virtually no Southern iron is coming into this market at the present time.

Quotations below, except on basic and low phosphorus iron, are delivered Cleveland, and for local iron include a 50c. switching charge. Ohio silvery and Southern iron prices are based on a $3.02 freight rate from Jackson and $6 rate from Birmingham:

Basic, Valley furnace	$19.00
N'th'n No. 2 fdy., sil. 1.75 to 2.25	$20.50 to 21.00
Southern fdy., sil. 1.75 to 2.25	$23.50 to 24.00
Malleable	20.50
Ohio silvery, 8 per cent	33.52
Stand. low phos., Valley furnace	27.50 to 28.00

Iron Ore.—Although about 100 ore vessels are on the idle list, the shipments from upper Lake docks continue heavier than one would expect under present conditions of greatly reduced pig iron production. It is expected that the Lake movement for August will be about 6,500,000 tons, compared with 7,200,000 tons in July, 1924. An interesting fact is that in July of this year blast furnaces using Lake Superior ores consumed only 2,415,300 tons, as compared with 5,747,356 tons in July last year. The production of pig iron by these furnaces decreased 51.6 per cent, while their consumption of Lake Superior ore decreased 57.6 per cent. This is one of the facts indicating that the 40,000,000 tons which it is expected will be shipped from the Lake Superior region this year will be ample to meet all requirements.

Bolts, Nuts and Rivets.—The moderate improvement in the market for nuts and bolts which has been noted for several weeks continues and the discount of 60 and 20 per cent on large machine bolts is being rigidly adhered to. Some manufacturers who had been selling at lower prices have come to agree with others who have been staying out of the market lately, that selling at a greater discount than 60 and 20 entails a substantial loss. One important company reports a very substantial increase in shipments within the last week or two. Strong competition has developed recently in cap and set screws and discounts have been increased as shown on page 540, so that prices are now 10 to 30 per cent lower.

Semi-Finished Steel.—Activities of manufacturers have been confined almost entirely to deliveries on old contracts. They have gradually been catching up on deferred shipments. One company has been able to keep 12 open-hearth furnaces in operation on old contracts. The time is almost at hand when there must be considerable contracting and speculation as to probable price of slabs, sheet bars and billets is being indulged. There has been some talk of new contracts being made at $37.50 for sheet bars and billets, or 50c. below prices on existing contracts, but it seems probable that, if any concession is made, it will be more than 50c.

Sheets.—One northern Ohio company manufacturing sheets has notified its agents that it is well supplied with orders and that all tonnages must be submitted to the home office. Other companies are not so fortunate, but conditions undoubtedly have improved and prices seem to have settled to a basis of 3.50c. for black, 4.60c. for galvanized and 2.65c. to 2.70c. for blue annealed. But an inquiry for several hundred tons of galvanized developed a price somewhat lower than 4.60c. Frequently when price concessions have been made of late they were on grades involving large extras for finishes. Automobile seconds, which are used largely in the manufacture of barrels and boxes, have been selling at very low prices, but are now quoted on a basis of 3.35c. to 3.50c. for No. 22, which represents a substantial advance.

Bars, Shapes and Plates.—On steel bars 2.10c. is the prevailing price on ordinary business, but as low as

2.05c. has been done. Irregularity continues in shapes. No difficulty is experienced in getting a 2.10c. Pittsburgh price on any considerable tonnage, while 2.15c. prevails on small lots. Tank plates are fairly firm at 2c, but on tonnages of locomotive steel involving large extras concessions are made.

Reinforcing Bars.—The demand is only fairly good for small lots, and no important contracts have been awarded. Prices range from 1.90c. to 2c. for rail steel bars and 2.10c. to 2.15c. for billet steel bars.

Strip Steel.—The very low prices recently made on hot rolled and cold rolled strip steel are disappearing and for hot rolled 2.50c. seems to be the minimum, and hoops are quoted at 2.60c. On cold rolled strip steel the 4c. price is not heard of and 4.25c. prevails.

Warehouse Business.—One important company states that its August business is 10 per cent ahead of that for July.

Jobbers quote steel bars, 3.11c.; plates and structural shapes, 3.21c.; No. 28 black sheets, 4.35c.; No. 28 galvanized sheets, 5.45c.; No. 10 blue annealed sheets, 3.60c. to 3.76c.; cold-rolled rounds, 4c.; flats, squares and hexagons, 4.50c.; hoops and bands, 1 in. and wider and 20 gage or heavier, 3.86c.; narrower than 1 in. or lighter than No. 20 gage, 4.36c.; No. 9 annealed wire, $3.30 per 100 lb.; No. 9 galvanized wire, $3.75 per 100 lb.; common wire nails, $3.40 base per 100 lb.

Coke.—There is not much activity in the foundry coke market, but some contracting has been done and prices range from $4.50 to $5.50 in standard Connellsville grades.

Old Material.—The moderate amount of speculating that was going on on the part of dealers ceased a few days ago and the market took on an appearance of weakness, but during the past few days has become a little stronger. Buyers are, however, abstaining entirely from the market and a deadlock prevails with the prices unchanged from a week ago.

We quote dealers' prices f.o.b. Cleveland per gross ton:

Heavy melting steel	$15.00 to $15.50
Rails for rolling	15.75 to 16.00
Rails under 3 ft.	16.25 to 16.75
Low phosphorus melting	17.50 to 17.75
Cast iron borings	14.00 to 14.50
Machine shop turnings	13.00 to 13.25
Mixed borings and short turnings	13.25 to 13.75
Compressed sheet steel	13.25 to 13.50
Railroad wrought	12.75 to 13.00
Railroad malleable	17.00 to 17.50
Light bundled sheet stampings	12.00 to 12.50
Steel axle turnings	13.25 to 13.50
No. 1 cast	18.00 to 18.25
No. 1 busheling	12.75 to 13.00
Drop forge flashings	13.25 to 13.50
Railroad grate bars	13.25 to 13.50
Stove plate	13.25 to 13.50
Pipes and flues	11.00 to 11.25

Seattle

Slight Improvement in Inquiries in Pacific Northwest, but Trade Is Still Dull

SEATTLE, Aug. 21.—Practically all the local sales managers for the Eastern steel mills report that in the past two weeks there has been improvement in inquiries and also that prices, while not any higher, are firmer, and there is less inclination on the part of the mills to allow their representatives to offer concessions to get orders. In fact, two of the larger Eastern mills have notified their agents here that certain prices must be obtained, and if this cannot be done, they are to pass up the business. At the same time it is true that there has been little, if any, increase in actual tonnage being booked.

Some steel warehouses in Seattle have been checking up their stocks, with the idea that very soon they will begin to order in stocks of certain steel lines on which their supply is very low. It is the impression here that the end of light buying has been reached, and that soon there will be a notable increase in orders. With the first signs of renewed buying, concessions which have been so easily obtainable for some time may start to disappear. In fact, concessions are harder right now to obtain from certain mills than for some time.

There is no cessation in building construction here, in fact it seems to be growing larger, and plans are under way for the erection of some large structures that will keep labor well employed for months to come. A local steel fabricator states that it has more work on its books, and in sight, than ever before in its history.

Plates are showing more inquiry, but prices are low. Sheared plates, ¼-in. and heavier of tank quality are obtainable from some Eastern mills at 2.35c. to 2.40c., delivered here, but two mills are passing up orders offered them at these prices. A municipal water line at Seaside, Ore., involving about 45,000 ft. of 16-in. pipe is in the market, and low prices have been made on the steel plates. Wooden pipe is likely to be used because of its lower price. Plates at 2.35c., Seattle, mean 1.64c. at Eastern mill, there being a freight charge of 31c. to Baltimore by rail, and 40c. by water, via the canal.

Prices on structural shapes are holding firm at 2.50c. at dock, Seattle, and it would take a very desirable order to obtain a concession. The largest order given out here for some time was the steel for the new Eagle's temple, about 500 tons, divided between Bethlehem and Carnegie interests. The contract for this building was secured by the Sound Construction & Engineering Co., the steel work being sublet to the Poole & McGonigle Co. of Portland.

In sympathy with the recent drop in Eastern prices on wire products, local prices are also lower. Representatives of Eastern mills are freely offering wire nails on the basis of $2.80 and plain wire $2.55, Pittsburgh, and there are intimations that two large local jobbers have had slightly lower prices quoted them, but this is not confirmed. It is difficult for the Eastern mills to get into the Seattle market with wire products, long time in delivery and freight charges being against them. The rail and water freight from Pittsburgh to Seattle is 71c. per 100-lb., but the Gulf States Steel Co. has a rail and water rate into Seattle of 59½c. and is securing considerable business here. In addition, the Colorado Fuel & Iron Co. has an all rail rate to Seattle of 77c., six cents higher than the Pittsburgh rate, but this concern has a decided advantage in the matter of delivery, and in normal times very often gets the business solely because of quicker delivery. It is estimated that 35,000 to 40,000 kegs of coated nails are used annually in the local market by the fish packers, and most of these nails come from Eastern mills, one Pittsburgh mill having in recent years secured quite a good part of this trade by reason of the fact that it quotes the same prices on cement coated nails to the packers that it does to the jobbers, thus shutting the latter out.

Prices on sheets in the local market are firmer. Eastern mills have advised their Seattle representatives that they will not accept orders for blue annealed at less than 2.70c., No. 28 black at 3.50c. and No. 28 galvanized at 4.60c., all these prices being f.o.b. Pittsburgh mill. Sales of several carloads of black and galvanized have been made in the past week at these prices.

Steel bars are holding quite firm at 2.50c., delivered on dock at Seattle. As in the case of wire products, Eastern mills have trouble in getting into the Seattle market with bars, the local Pacific Coast Steel Co. making quite a full range of sizes in ordinary steel bars and also in reinforcing bars.

Blast Furnace Notes

The Indiana Steel Co. is rebuilding blast furnace No. 5 at Gary, Ind., which was recently partially destroyed by an explosion.

Ashland furnace of the American Rolling Mill Co., Ashland, Ky., has gone out of blast. The Portsmouth furnace is scheduled to blow in early in September.

One Iroquois furnace was blown in Aug. 26 and Zenith stack at Duluth is scheduled to go in Sept. 15 or earlier. It is reported that the Cherry Valley Furnace, Leetonia, Ohio, will be blown out for relining Oct. 1, and that a Dover furnace, Canal Dover, Ohio, owned by the same interest, will be blown in about the same date.

Prices Finished Iron and Steel f.o.b. Pittsburgh

Carload Lots

Plates

Sheared, tank quality, base, per lb.....1.90c. to 2c.

Structural Materials

Beams, channels, etc., base, per lb.....2c. to 2.15c.
Sheet piling .....2.10c. to 2.25c.

Iron and Steel Bars

Soft steel bars, base, per lb.....2.10c. to 2.15c.
Soft steel bars for cold finishing.....$3 per ton over base
Reinforcing steel bars, base.....2.10c. to 2.15c.
Refined iron bars, base, per lb.....2.90c. to 3c.
Double refined iron bars, base, per lb.....4.50c.
Stay bolt iron bars, base, per lb.....6.50c. to 7.00c.

Hot-Rolled Flats

Hoops, base, per lb.....2.60c. to 2.75c.
Bands, base, per lb.....2.50c. to 2.60c.
Strips, base, per lb.....2.25c. to 2.50c.

Cold-Finished Steel

Bars and shafting, drawn or rolled, base, per lb.....2.80c.
Bars and shafting, drawn or rolled, l.c.l., per lb.....3.05c.
Shafting, turned and polished, base, per lb.....2.80c.
Bars, S. A. E. Series, No. 2100.....4.25c. to 4.50c.
Bars, S. A. E. Series, No. 2300.....6.00c.
Bars, S. A. E. Series, No. 3100.....4.90c. to 5.00c.
Strips, base, per lb.....4.00c. to 4.25c.

Wire Products

(To jobbers in car lots)

Nails, base, per keg.....$2.80
Galvanized nails, 1 in. and over.....$2.25 over base
Galvanized nails, less than 1 in.....2.50 over base
Bright plain wire, base, No. 9 gage, per 100 lb.....$2.55
Annealed fence wire, base, per 100 lb..... 2.70
Spring wire, base, per 100 lb..... 3.50
Galvanized wire No. 9, base, per 100 lb..... 3.15
Galvanized barbed, base, per 100 lb..... 3.50
Galvanized staples, base, per keg..... 3.50
Painted barbed wire, base, per 100 lb..... 3.25
Polished staples, base, per keg..... 3.25
Cement coated nails, base, per count keg..... 2.20
Woven fence (to jobbers) 726-12½-12, per 100 rods....18.70
Woven fence (to retailers) 726-12½-12, per 100 rods....20.03
Bale ties, carloads to jobbers..75, 5, 5 and 2½ per cent off list

Bolts and Nuts

Machine bolts, small rolled threads,
60, 20 and 10 per cent off list
Machine bolts, all sizes, cut threads..60 and 20 per cent off list
Carriage bolts, smaller and shorter, rolled threads
60 and 20 per cent off list
Carriage bolts, cutthreads, all sizes..60 and 10 per cent off list
Hot pressed nuts, blank or tapped, square.....4.75c. off list
Hot pressed nuts, blank or tapped, hexagons....5.25c. off list
C.p.c. and t. square or hex nuts, blank or tapped..4.75c. off list
Eagle carriage bolts.....65, 10 and 10 per cent off list

Semi-finished hex nuts:
⅞ in. and smaller, U. S. S.....80, 10 and 5 per cent off list
⅞ in. and larger, U. S. S.....75, 10 and 5 per cent off list
Small sizes, S. A. E.....80, 10, 10 and 5 per cent off list
S. A. E., ⅝ in. and larger.....75, 10 and 5 per cent off list
Stove bolts in packages.....80, 10 and 5 per cent off list
Stove bolts in bulk.....80, 10, 5 and 2½ per cent off list
Tire bolts .....60 and 10 per cent off list
Bolt ends with hot pressed nuts.....60 and 20 per cent off list
Bolt ends with cold pressed nuts.....60 per cent off list
Turnbuckles, with ends, ½ in. and smaller,
55 and 5 per cent off list
Turnbuckles, without ends, ½ in. and smaller,
70 and 10 per cent off list
Washers .....5.75c. to 6.00c.
Lock washers .....80 per cent off list

Semi-Finished Castellated and Slotted Nuts

(To jobbers and consumers in large quantities f.o.b. Pittsburgh.)

	Per 1000 S. A. E.	Per 1000 U. S. S.		Per 1000 S. A. E.	Per 1000 U. S. S.
¼-in.	$4.25	$4.25	⅞-in.	$13.25	$13.50
5/16-in.	4.90	4.90	¾-in.	16.25	16.50
⅜-in.	5.90	6.25	⅞-in.	22.50	23.00
7/16-in.	7.50	8.50	1-in.	34.00	34.00
½-in.	9.75	10.00	1-in.	53.00	55.00

Larger sizes—Prices on application.

Cap and Set Screws

Milled hex. head cap screws.....85 per cent off list
Milled standard set screws, case hardened..85 per cent off list
Milled headless set screws, cut thread....85 per cent off list
Upset hex. head cap screws, U. S. S. thread.
85 and 10 per cent off list
Upset hex. head cap screws, S. A. E. thread,
85 and 10 per cent off list
Milled studs .....80 per cent off list

Rivets

Large structural and ship rivets, base, per 100 lb.....$2.60
Small rivets.....70, 10 and 5 per cent off list

Track Equipment

Spikes, ⅜ in. and larger, base, per 100 lb.....	$2.80
Spikes, ½ in. and smaller, base, per 100 lb.....	3.25
Spikes, boat and barge, base, per 100 lb.....	3.25
Track bolts, all sizes, base, per 100 lb.....	3.75
Track bolts, heat-treated, base, per 100 lb.....	4.25
Tie plates, per 100 lb.....	2.50
Angle bars, base, per 100 lb.....	2.75

Welded Pipe

Butt Weld

Steel Inches	Black	Galv.	Iron Inches	Black	Galv.
⅛	45	19½	¼ to ⅜.....	+11	+39
¼ to ⅜.....	51	25½	½	22	2
½	56	42½	¾	28	11
¾	60	48½	1 to 1½.....	30	13
1 to 3.....	62	50½			

Lap Weld

2	55	43½	2	23	7
2½ to 6.....	59	47½	2½	26	11
7 and 8.....	56	43½	3 to 6.....	28	13
9 and 10....	54	41½	7 to 12.....	26	13
11 and 12...	53	40½			

Butt Weld, extra strong, plain ends

⅛	41	24½	2 to 3.....	61	50½
¼ to ⅜.....	47	30½	¼ to ⅜.....+2		+54
½	53	42½	½	21	7
¾	58	47½	¾	28	12
1 to 1½.....	60	49½	1 to 1½.....	30	14

Lap Weld, extra strong, plain ends

2	53	42	2	23	9
2½ to 4.....	57	46½	2½ to 4.....	29	15
4½ to 6.....	56	45½	4½ to 6.....	28	14
7 to 8.....	52	39½	7 to 8.....	21	7
9 and 10.....	45	32½	9 to 12.....	16	2
11 and 12....	44	31½			

To the large jobbing trade the above discounts are increased by one point, with supplementary discount of 5 per cent on black and 1½ points, with a supplementary discount of 5 per cent on galvanized.

Boiler Tubes

Lap Welded Steel		*Charcoal Iron*	
2 to 2¼ in.....	27	1½ in. .....+18	
2½ to 2¾ in.....	37	1¾ to 1⅞ in.....+ 8	
3 in.	40	2 to 2¼ in.....— 2	
3¼ to 3¾ in.....	42½	2½ to 3 in.....— 7	
4 to 13 in.....	46	3¼ to 4½ in.....— 9	

Standard Commercial Seamless Boiler Tubes

Cold Drawn			
1 in.	55	3 and 3¼ in.....	36
1¼ and 1½ in.....	47	3½ and 3¾ in.....	37
1¾ in.	31	4 in.	41
2 and 2¼ in.....	22	4½ in. and 5 in.....	33
2½ and 2¾ in.....	32		

Hot Rolled			
3 and 3¼ in.....	38	4 in.	43
3½ in. and 3¾ in.....	39		

Less carloads, 4 points less. Add $8 per net ton for more than four gages heavier than standard. No extra for lengths up to and including 24 ft. Sizes smaller than 1 in. and lighter than standard gage to be held at mechanical tube list and discount. Intermediate sizes and gages not listed take price of next larger outside diameter and heavier gage.

Seamless Mechanical Tubing

Carbon under 0.30 base.....87 per cent off list
Carbon 0.30 to 0.40, base.....85 per cent off list
Plus usual differentials and extras for cutting. Warehouse discounts range higher.

Seamless Locomotive and Superheater Tubes

	Cents per Ft.		Cents per Ft.
2-in. O.D. 12 gage....	15	2¼-in. O.D. 10 gage..	20
2-in. O.D. 11 gage....	16	3-in. O.D. 7 gage.....	35
2-in. O.D. 10 gage....	17	1⅛-in. O.D. 9 gage...	15
2¼-in. O.D. 12 gage..	17	5⅜-in. O.D. 9 gage...	55
2¼-in. O.D. 11 gage..	18	5½-in. O.D. 9 gage...	57

Tin Plate

Standard cokes, per base box.....$5.50

Terne Plate

(Per Package, 20 x 28 in.)

8-lb coating, 100 lb. base $11.00		20-lb. coating I. C.....$14.90	
		25-lb. coating I. C.....	16.20
8-lb. coating I. C.....	11.30	30-lb coating I. C.....	17.35
12-lb. coating I. C.....	12.70	35-lb. coating I. C.....	18.35
15-lb. coating I. C.....	13.95	40-lb. coating I. C.....	19.35

Sheets

Blue Annealed

Nos. 9 and 10 (base), per lb.....2.65c. to 2.70c.

Box Annealed, One Pass Cold Rolled

No. 28 (base), per lb.....3.50c.

Automobile Sheets

Regular auto body sheets, base (22 gage), per lb.....4.75c.

Galvanized

No. 28 (base), per lb.....4.60c.

Long Ternes

No. 28 gage (base), 8-lb. coating, per lb.....4.95c. to 5c.

Tin-Mill Black Plate

No. 28 (base), per lb.....3.50c.

Prices of Raw Materials, Semi-Finished and Finished Products

Ores

Lake Superior Ores, Delivered Lower Lake Ports

Old range Bessemer, 55 per cent iron	$5.65
Old range non-Bessemer, 51½ per cent iron	4.90
Mesabi Bessemer, 55 per cent iron	5.40
Mesabi non-Bessemer, 51½ per cent iron	4.75

Foreign Ore, per Unit, c.i.f. Philadelphia or Baltimore

Iron ore, low phos., copper free, 55 to 58 per cent iron in dry Spanish or Algerian	9.00c. to 9.50c.
Iron ore, Swedish, average 66 per cent iron	9.50c.
Manganese ore, washed, 51 per cent manganese, from the Caucasus, nominal	45c.
Manganese ore, ordinary, 48 per cent manganese, from the Caucasus	42c.
Manganese ore, Brazilian or Indian, nominal	42c.
Tungsten ore, per unit, in 60 per cent concentrates	$8.75 to $10.00
Chrome ore, basic, 48 per cent Cr_2O_3, crude, per ton, c.i.f. Atlantic seaboard	19.00 to 22.00
Molybdenum ore, 85 per cent concentrates, per lb. of MoS_2, New York	75c. to 85c.

Ferroalloys

Ferromanganese, domestic, 80 per cent, furnace, or seaboard, per ton	$90.00 to $95.00
Ferromanganese, British, 80 per cent f.o.b. Atlantic port, duty paid	92.50 to 95.00
Ferrosilicon, 50 per cent, delivered	72.00 to 75.00
Ferrosilicon, 75 per cent	140.00
Ferrotungsten, per lb. contained metal	90c. to 93c.
Ferrochromium, 4 to 6 per cent carbon, 60 to 70 per cent Cr. per lb. contained Cr. delivered	10.75c.
Ferrochromium, 6 to 7 per cent carbon, 60 to 70 per cent Cr., per lb.	10.50c.
Ferrovanadium, per lb. contained vanadium	$3.50 to $4.00
Ferrocarbontitanium, 15 to 18 per cent, per net ton	200.00

Spiegeleisen, Bessemer Ferrosilicon and Silvery Iron

(Per gross ton furnace unless otherwise stated)

Spiegeleisen, domestic, 19 to 21 per cent	$32.00 to $33.00
Spiegeleisen, domestic, 16 to 19 per cent	31.00 to 32.00

Ferrosilicon, Bessemer, 10 per cent, $39.50; 11 per cent, $42; 12 per cent, $44.50; 14 to 16 per cent (electric furnace), $36.00.

Silvery iron, 5 per cent, $27.00; 6 per cent, $28.00; 7 per cent, $29.00; 8 per cent, $30.50; 9 per cent, $32.50; 10 per cent, $34.50; 11 per cent, $37.00; 12 per cent, $39.50.

Fluxes and Refractories

Fluorspar, 80 per cent and over calcium fluoride, not over 5 per cent silica, per net ton f.o.b. Illinois and Kentucky mines	$18.00 to $19.00
Fluorspar, 85 per cent and over calcium fluoride, not over 5 per cent silica, per net ton f.o.b. Illinois and Kentucky mines	19.00 to 20.00

Per 1000 f.o.b. works:

Fire Clay:	High Duty	Moderate Duty
Pennsylvania	$40.00 to $43.00	$36.00 to $40.00
Maryland	45.00 to 47.00	40.00 to 42.00
Ohio	40.00 to 43.00	37.00 to 39.00
Kentucky	42.00 to 43.00	37.00 to 39.00
Illinois	——	37.00 to 42.00
Missouri	42.00 to 45.00	35.00 to 40.00
Ground fire clay, per net ton		6.00 to 7.00
Silica Brick:		
Pennsylvania		35.00 to 38.00
Chicago		47.00
Birmingham		50.00
Ground silica clay, per net ton		7.50 to 8.00
Magnesite Brick:		
Standard size, per net ton (f.o.b. Baltimore and Chester, Pa.)		65.00
Grain magnesite, per net ton (f.o.b. Baltimore and Chester, Pa.)		40.00
Chrome Brick:		
Standard size, per net ton		45.00

Semi-Finished Steel, F.O.B. Pittsburgh or Youngstown, per gross ton

Rolling billets, 4-in. and over	$37.00 to $38.00
Rolling billets, 2-in. and under	37.00 to 38.00
Forging billets, ordinary carbons	42.00 to 43.00
Sheet bars, Bessemer	$37.50 to 38.00
Sheet bars, open-hearth	37.50 to 38.00
Slabs	37.00 to 38.00
Wire rods, common soft, base, No. 5 to ⅜-in.	46.00
Wire rods, common soft, coarser than ⅜-in.	$2.50 over base
Wire rods, screw stock	$5.00 per ton over base
Wire rods, carbon, 0.20 to 0.40	3.00 per ton over base
Wire rods, carbon 0.41 to 0.55	5.00 per ton over base
Wire rods, carbon 0.56 to 0.75	7.50 per ton over base
Wire rods, carbon over 0.75	10.00 per ton over base
Wire rods, acid	15.00 per ton over base
Skelp, grooved, per lb.	2c.
Skelp, sheared, per lb.	2c.
Skelp, universal, per lb.	2c.

Finished Iron and Steel, F.O.B. Mill

Rails, heavy, per gross ton	$43.00
Rails, light, new steel, base, lb.	1.85c. to 1.90c.
Rails, light, rail steel, base, per lb.	1.65c. to 1.75c.
Bars, common iron, base, per lb., Chicago mill	2.15c.
Bars, common iron, Pittsburgh mill	2.40c.
Bars, rail steel reinforcing, base, per lb.	2.10c. to 2.15c.
Rail steel bars, base, per lb., Chicago mill	2c.
Cold-finished steel bars, base, Chicago, per lb.	2.75c.
Ground shafting, base, per lb.	3.20c.
Cut nails, base, per keg	$2.90

Alloy Steel

S. A. E. Series Numbers	Bars 100 lb.
2100*(1¼% Nickel, 10 to 20 per cent Carbon)	$3.00 to $3.25
2300 (3½% Nickel)	4.75
2500 (5% Nickel)	6.00 to 6.50
3100 (Nickel Chromium)	3.65 to 3.75
3200 (Nickel Chromium)	5.50 to 5.75
3300 (Nickel Chromium)	7.25 to 8.00
3400 (Nickel Chromium)	6.50 to 7.00
5100 (Chromium Steel)	3.50 to 3.75
5200*(Chromium Steel)	7.50 to 8.00
6100 (Chromium Vanadium bars)	4.50
6100 (Chromium Vanadium spring steel)	4.25 to 4.50
9250 (Silicon Manganese spring steel)	3.50 to 3.75
Carbon Vanadium (0.45 to 0.55 Carbon, 0.15 Vanadium)	4c.
Nickel Chrome Vanadium (0.60 Nickel, 0.50 Chromium, 0.15 Vanadium)	4.25 to 4.50
Chromium Molybdenum bars (0.80—1.10 Chromium, 0.25—0.40 Molybdenum)	4.25 to 4.50
Chromium Molybdenum bars (0.50—0.70 Chromium, 0.15—0.25 Molybdenum)	3.75 to 4.25
Chromium Molybdenum spring steel (1—1.25 Chromium, 0.30—0.50 Molybdenum)	4.75 to 5.00

Above prices are for hot-rolled steel bars, forging quality, per 100-lb., f.o.b. Pittsburgh. For billets 4 x 4 to 10 x 10-in. the price for a gross ton is the net price for bars of the same analysis. For billets under 4 x 4-in. down to and including 2½-in. squares, the price is $5 a gross ton above the 4 x 4 billet price.

*Not S.A.E. specifications, but numbered by manufacturers to conform to S.A.E. system.

Freight Rates

All rail freight rates from Pittsburgh on finished iron and steel products, carload lots, 36,000 lb. minimum carload, per 100 lb:

Philadelphia, domestic	$0.32	Buffalo	$0.265	Kansas City	$0.735	*Pac. Coast, ship plates	$1.20
Philadelphia, export	0.235	Cleveland	0.19	Kansas City (pipe)	0.705	Birmingham	0.58
Baltimore, domestic	0.31	Youngstown	0.095	St. Paul	0.60	Memphis	0.56
Baltimore, export	0.225	Detroit	0.29	Omaha	0.735	Jacksonville, all rail	0.70
New York, domestic	0.34	Cincinnati	0.29	Omaha	0.705	Jacksonville, rail and water	0.415
New York, export	0.255	Indianapolis	0.31	*Denver	1.15	New Orleans	0.67
Boston, domestic	0.365	Chicago	0.34	†Denver (pipe)	1.17		
Boston, export	0.255	St. Louis	0.43	*Pacific Coast	1.15		

*Applied minimum carload 80,000 lb. †Minimum loading 46,000 lb.

Rates from Atlantic Coast ports (i.e., New York, Philadelphia and Baltimore) to Pacific Coast ports of call on most steamship lines, via the Panama Canal, are as follows: Pig iron, 35c.; ship plates, 40c.; ingots and muck bars, structural steel, common wire products, including cut or wire nails, spikes, and wire hoops, 40c.; sheets and tin plates, 40c.; sheets, No. 12 gage and lighter, 50c.; rods, 40c.; wire rope cables and strands, 45c.; wire fencing, netting and stretcher, 40c.; pipes not over 12 in. in diameter, 55c.; over 12 in. in diameter, 2½c. per in. or fraction thereof additional. All rates per 100 lb. in carload lots, minimum 36,000 lb.

NON-FERROUS METALS

The Week's Prices

Cents Per Pound for Early Delivery

Aug.	Copper, New York: Lake	Copper, New York: Electrolytic*	Straits Tin (Spot): New York	Lead: New York	Lead: St. Louis	Zinc: New York	Zinc: St. Louis
20.....	13.75	13.37½	52.70	8.25	8.00	6.60	6.25
21.....	13.75	13.37½	53.12½	8.25	8.00	6.60	6.25
22.....	13.75	13.37½	52.50	8.25	8.00	6.60	6.25
23.....	13.75	13.37½	....	8.25	8.00	6.57½	6.22½
25.....	13.75	13.25	51.62½	8.25	8.00	6.60	6.25
26.....	13.62½	13.25	51.25	8.25	8.00	6.60	6.25

*Refinery quotation; delivered price ¼c. higher.

New York

NEW YORK, Aug. 26.

The markets are all moderately active and prices in most cases are strong, copper and tin being the only exception. Lower prices prevailed for copper due to speculative selling. A fair demand for tin, at advancing prices until the last two days, has characterized this market. Lead is quieter but very firm. Increased buying of zinc has made this market stronger.

Copper.—Buying by both domestic and foreign consumers is not as heavy as it has been. Early in the advance a few weeks ago a good deal of copper was bought by various interests on speculation. This metal is now being offered at concessions. The lessened demand and the speculative selling have resulted in lower prices. It is quite certain that the metal has sold as low as 13.37½, delivered, but the quantity has not been large. It is difficult to quote the market, as large producers are asking the higher level. A fair appraisal would be 13.50c. to 13.62½c., delivered, over the next three months, and in some cases the rest of the year. Reports of the statistics for July, which are not official, indicate the largest production for any month this year. Published reports of these figures are, however, somewhat valueless, because they are not officially given out. Lake copper is quoted at 13.62½c. to 13.75c., delivered.

Tin.—In a quiet market a moderate business has been done; mostly for spot and nearby delivery. Most sellers having tin have manifested a desire to do business and there has been an absence of supporting orders. There has been no desire on the part of sellers to boost prices. Consumers have found it necessary to do some buying, but have had to content themselves with prompt tin. This has, however, caused no commotion. In the aggregate the total sales have not been large, and there has not been much interest in futures. In the last three or four days prices have been sagging, particularly in the absence of supporting orders and late yesterday the metal was offered down, with the market soft and sales made as low as 50.75c. to 51c., with total sales about 100 tons. Today about 150 tons changed hands at around 51c., with a considerably better tone at the end of the day. Spot straits tin was quoted today at 51.25c., with futures held at 51.12½c. In London spot standard was quoted at £250 15s., future standard, £251 15s., and spot Straits at £252, with the Singapore quotation yesterday at £255. Arrivals thus far this month have been 3180 tons, with 4315 tons reported afloat.

Lead.—The market is very firm, but less active. Consumers have bought very heavily in the last few weeks and are not now eager to make more purchases. The leading interest continues to maintain its contract price at 8c., New York, but the outside market is 8.25c., New York, largely nominal, with the lowest St. Louis quotation 8c.

Zinc.—In the last week there has been fairly liberal buying of prime Western zinc by galvanizers but this has tapered off in the last day or two. It has made for a firmer market, however, and at one time the metal sold as high as 6.27½c., St. Louis. Today the market is a little quieter and easier, with quotations at 6.25c., St. Louis, or 6.60c., New York.

Nickel.—Shot and ingot nickel in wholesale lots are quoted unchanged at 27c. to 32c. per lb., with electrolytic nickel held at 32c. by the leading producers.

Antimony.—In a considerably stronger market, due partly to speculative conditions in China, the metal is quoted at 10.50c., New York, duty paid.

Aluminum.—Virgin metal, 98 to 99 per cent pure, is quoted by importers at 26.50c. to 27c. per lb., duty paid, delivered.

Old Metals.—Prices continue firm. Dealers' selling prices are as follows:

Copper, heavy and crucible	13.25
Copper, heavy and wire	12.00
Copper, light and bottoms	11.25
Heavy machine composition	10.50
Brass, heavy	8.50
Brass, light	7.00
No. 1 red brass or composition turnings	9.25
No. 1 yellow rod brass turnings	8.00
Lead, heavy	7.37
Lead, tea	6.25
Zinc	4.25
Cast aluminum	17.00
Sheet aluminum	17.00

Chicago

AUG. 28.—Lead and antimony have advanced, while tin has declined. Demand for lead has been heavy, but the edge is off the market and premium prices paid last week have disappeared. Antimony is strong with buying undiminished. Copper buyers are apathetic, being unconvinced that higher prices are ahead. Considerable tin has been bought, but largely by dealers rather than by consumers. Zinc is marking time. Among the old metals the only change is a decline in tin foil. We quote in carload lots: Lake copper, 14c.; tin, 53c.; lead, 8.15c.; spelter, 6.25c.; antimony, 12c., in less than carload lots. On old metals we quote copper wire, crucible shapes and copper clips, 11c.; copper bottoms, 9.25c.; red brass, 8.50c.; yellow brass, 7.25c.; lead pipe, 7c.; zinc, 4c.; pewter, No. 1, 25c.; tin foil, 32c.; block tin, 36c., all buying prices for less than carload lots.

Steel Treaters' Convention at Boston

Doctors Bulle and Bleibtreu, of the German Iron and Steel Institute, will be present to participate in the sixth annual convention and exposition of the American Society for Steel Treating this year, at Boston, Sept. 22 to 26.

Chairmen for the various technical sessions have been selected, and are as follows: Dr. George K. Burgess, director of the Bureau of Standards, and president of the society; Dr. Albert Sauveur, of Harvard University; Dr. Zay Jeffries, of the Aluminum Co. of America; Dr. John A. Mathews, of the Crucible Steel Co. of America; Prof. H. M. Boylston, of the Case School of Applied Science; Lieut.-Col. A. E. White, of the University of Michigan; A. H. d'Arcambal, of Pratt & Whitney Co.; Dr. H. B. Hollnagel, of the General Electric Co.

The exposition this year will be the largest industrial exhibit ever held under the auspices of the society, and will occupy 150,000 sq. ft. of Commonwealth Pier. There are 200 exhibitors, 30 of them representing the steel makers, 30 representing all types of furnaces, while some 70 machine and machine tool builders have reserved space. Over 1000 hp. will be required to work the display.

The annual smoker will be held in the ball room of the Copley Plaza on Tuesday evening, while the banquet and dance will be held on Thursday evening at the same place. The ladies' entertainment committee is planning to take care of 400 ladies.

The committee on plant visitation has arranged trips to various New England manufacturing industries, such as the General Electric Co. at Lynn, the Thomas G. Plant Co.; Waltham Watch Co.; the Nomkeag Mfg. Co., a textile plant, and visits to Harvard University, Massachusetts Institute of Technology and Charleston Navy Yard.

The By-Products Corporation, Chicago, has retained Freyn, Brassert & Co., Chicago, as engineers for the design and construction of a new 2400-hp. boiler plant to be installed at its coke plant at South Chicago.

PERSONAL

Edwin W. Fulton, manager of the Atlas Vise Co., and the Velox Vise Co., Lowville, N. Y., which have been acquired by the Oswego Tool Works, Inc., Oswego, N. Y., will become general works manager for the latter company, succeeding Benjamin W. Dow, resigned.

Gordon H. McCrae, manager of the London office of the Independent Pneumatic Tool Co., Chicago, has been elected a director of the company. He is visiting the United States and has been spending two weeks at the company's plant at Aurora, Ill., making a study of the manufacture of pneumatic and electric tools.

Isaac Black, sales manager Russell & Erwin division of the American Hardware Corporation, New Britain, Conn., and president American Hardware Dealers Association, has been made president of the Third Ward Republican Club, New Britain. He succeeds Fred M. Holmes, president North & Judd Mfg. Co., New Britain.

Kenneth Saunders, for several years with the Colonial Supply Co., oil well pipe and supplies, Pittsburgh, has resigned to go with Clayton Mark & Co., Chicago, whom he will represent in the Iowa territory, with headquarters in Des Moines.

Carl C. Joys, Jr., New York, has been appointed sales manager of couplings and oil field products by the A. O. Smith Corporation, Milwaukee. In April, 1923, Mr. Joys became vice-president of the Lucey Mfg. Corporation, Los Angeles, Cal., and was placed in charge of domestic sales of oil well equipment. Prior to his connection with the Lucey corporation, Mr. Joys was district sales manager in New York for the Steel & Tube Co. of America, Chicago.

Larry J. Barton, consulting metallurgical engineer, located for some time at New Orleans, specializing on the electric furnace and its application to the foundry, has joined the Ohio Steel Foundry Co. to have charge of research and metallurgical work at the Lima and Springfield plants of the company.

Frank H. Smith has been appointed to take charge of the Cleveland office of the Southwark Foundry & Machine Co., succeeding H. D. Andress and Stewart Bolling, Jr., who formerly represented the Southwark company in that district.

Nelson Littell, for several years an examiner in the metallurgical and chemical division of the Patent Office at Washington, has recently become a member of the firm of Hammond & Littell, patent lawyers, 110 East Forty-second Street, New York.

Neil King and R. H. Alkema, both formerly of the Vonnegut Machinery Co., Indianapolis, have joined the sales organization of the Richey-Rhynearson Machinery Co., 23-25 East South Street, Indianapolis.

Thomas Towne, widely known in the cold finished bar steel industry, has been appointed Eastern sales agent, with office at 452 Fifth Avenue, corner Fortieth Street, New York, by the Fitzsimons Co., Youngstown, Ohio, manufacturer of simple and alloy cold finished bar steels. Mr. Towne was a member of the iron and steel division of the standards committee of the American Society of Automotive Engineers during the creative and formative periods of the alloy steels, past secretary of the iron and steel committee of the American Society of Mechanical Engineers, for many years Eastern sales agent and later general manager of sales of the Union Drawn Steel Co., Beaver Falls, Pa.

Arthur Kipgen, technical director of Societe des Acieres Reunies de Burbach-Eich-Dudelange, commonly known as Arbed, the leading steel company of Luxemburg, sailed from New York on the France Aug. 27 after a tour of several weeks in this country in which he visited a number of steel plants in the leading districts.

Believes Business Is Progressively Improving

In a statement this month to employees, President James A. Campbell, of the Youngstown Sheet & Tube Co., predicts progressive betterment in business until the November election.

"I am glad to say that slightly better business conditions have developed since the middle of last month," states Mr. Campbell, "and there is hope that these will continue between this time and the election. The slight improvement is probably due to a number of causes. Stocks of materials on hand had become very small. Selling prices had been reduced to a very low point. The reparations question in Europe is about to be settled.

"Both Republican and Democratic candidates for President have outlined their positions and principles, and the political situation has developed to a point where there seems to be less doubt as to the result of the election. Above all, the recent advance in prices for agricultural products has influenced the situation.

"The last is a striking illustration of the operation of the law of supply and demand. The expectation that crops in this country and abroad may be short because of unfavorable weather conditions has increased the value of American crops for this year to an amount estimated at $1,250,000,000, and done more to restore prosperity on the farms than all the special legislation proposed or adopted in a hundred years.

"Unless something unforeseen occurs business should improve slowly until the November election. If that results in a continuance of present national policies, improvement should be rapid, as all other fundamental conditions are favorable. Capital is timid and any change in national policies would tend to check business activity.

"The chief issue before the country at this time is of supreme importance. If it is properly understood there is no danger. But unless we all take the trouble to consider the situation carefully and to inform ourselves properly, enough people may be misled by promises of impossible things to endanger the safety and prosperity of the country."

Ohio Foundry Wages

For the second quarter of 1924 the Ohio State Foundrymen's Association reports wages holding up in spite of drop in production. The report is from 124 foundries, of which nine are not operating. They were in 54 cities and towns and had 7415 employees. Open shops were maintained in 73 cases, union shops in 23, nonunion in one, while 20 did not report. Of the total listed 82 were gray iron foundries, six steel, four malleable and 25 nonferrous. Average wages of iron molders in July were 80.8c., compared with 77.4c. in April and with 77.6c. in July, 1923. Core makers in July were receiving 71.8c.; brass molders, 77.3c.; pattern makers, 70.7c., and common labor, 48.2c. In this latter case there was a steady increase from 42.7c. in July, 1923, to 45.5c. in October, 46.1c. in December, 47.9c. in April, 1924, and 48.2c. in July.

Revenue freight loaded by United States railroads in the week ended Aug. 9 amounted to 942,198 cars, a slight decrease from the 945,731 cars of the preceding week. With the exception of last year and of 1920, the figures in 1924 have been consistently week by week higher than in any previous year. The aggregate loadings for the year to date have been greater than in any previous year except 1923, with about 28,600,000 cars this year, 30,000,000 cars last year and 27,000,000 cars in 1920—the highest total ever reached prior to 1923.

OBITUARY

Edwin C. Henn and Oscar A. Smith

EDWIN C. HENN and OSCAR A. SMITH, officers of the National Acme Co., Cleveland, were killed in a grade crossing accident near Painesville, Ohio, Aug. 20, being struck by a train while driving to Warren, Pa., on a

E. C. HENN

O. A. SMITH

business trip. Mr. Smith was killed instantly and Mr. Henn lived but a few minutes. Mr. Henn was general superintendent and vice-president of the National Acme Co., Cleveland, from its organization in 1901 until early this year when he was succeeded by his son, Oliver L. Henn. At the time of his death he was a director of the company. Mr. Smith had been associated with Mr. Henn for about 30 years and at the time of his death was superintendent of the screw products division of the National Acme Co.

Mr. Henn was born in New Britain, Conn., June 5, 1863. While a boy he learned the brass finishing trade in New Britain by working after school and during vacations in the brass foundry of Landers, Frary & Clark, where his father was engaged in contract work. After leaving school he was employed for a time as a brass finisher for the Russell & Irwin company but desiring to broaden his experience started West at the age of 18 years, and was employed by the newly formed Joel Hayden Brass Co. at Lorain, Ohio, and later with the Powell Co., Cincinnati, where he worked a year. In 1883 he returned to New England and at the age of 21 became a contractor for the manufacture of brass valves for the Pratt & Cady Co., Hartford, Conn. A little later he was one of the organizers of the Standard Mfg. Co., Hartford. About that time Christopher M. Spencer developed a screw machine and gave the Standard Mfg. Co. an order for 25 of these machines. With these machines Mr. Spencer started the Spencer Screw Co., Windsor, Conn. Mr. Henn and his associates in the Standard Mfg. Co. then developed an automatic screw machine but did not place it on the market as they found that some of its features were already patented. Mr. Henn obtained employment at the Pratt & Whitney plant as a demonstrator and continued his experiments on screw machines.

After the first Acme machine was built, he secured the financial assistance of his brother, A. W. Henn, now president of the National Acme Co., who was employed at the time as a bookkeeper in a Cleveland store, and the Acme Machine Screw Co. was organized to manufacture the machine. In 1897 A. W. Henn went to Hartford to assist the company, which needed financial help. When the first lot of machines were completed in 1898 A. W. Henn succeeded in interesting W. B. D. Alexander, president of the National Screw & Tack Co., Cleveland, in the use of the machine and the latter placed an order for 20 automatics, a large order for those days. Mr. Alexander organized a new company, the National Mfg. Co., primarily to manufacture screws on the automatic machines. The National Mfg. Co. and the Acme Machine Screw Co. were closely allied financially and otherwise, one company making the machinery and special products in Hartford and the other operating a standard products plant in Cleveland.

In 1901 the two companies were combined as the National Acme Mfg. Co. with E. C. Henn as general superintendent and the Hartford plant was moved to Cleveland in 1902. Later a plant was established in Montreal, Canada, and the Windsor Machine Co., Windsor, Vt., was purchased and the company reincorporated under the name of the National Acme Co. Mr. Henn was one of the prominent manufacturers of Cleveland and at the time of his death was president of the Cleveland Athletic Club, and a member of the Shaker Heights Country Club, the Union Club and the American Society of Mechanical Engineers. He is survived by his wife, six sons and two daughters.

Mr. Smith was born in New Britain, Conn., and was 55 years of age. He joined Mr. Henn when the latter was experimenting with the multiple spindle automatic screw machine and designed many of the changes in the later types of the Acme machines. In addition he developed a number of machines mostly for secondary operation work such as bolt threaders, stud threaders, and multiple spindle drilling machines. He was a prominent member of the Society of Automotive Engineers.

GEORGE LAUDER, who was one of Andrew Carnegie's partners, died at Greenwich, Conn., Aug. 24, aged 87 years. Mr. Lauder retired from the steel business in 1901, when the Carnegie Steel Co. was acquired in connection with the formation of the United States Steel Corporation. He was a member of the firm of Carnegie, Phipps & Co., and in 1892 participated in the formation of the Carnegie Steel Co., Ltd. He had at one time a considerable interest in the Larimer Coke Co. His early business life was spent in Scotland, after his graduation from the University of Glasgow in 1856. Mr. Lauder was one of the three holders of Carnegie Steel Co. stock whose interests were paid for by the promoters of the United States Steel Corporation entirely in bonds. Andrew Carnegie and Mrs. Lucy C. Carnegie were the others.

CHARLES EDWARD DUDLEY TIBBITS, of Troy, N. Y., who died Aug. 19 at Murray Bay, Que., was formerly president of the Walter A. Wood Mowing & Reaping Machine Co., Hoosick Falls, N. Y. He was 90 years old.

HOWARD D. WILLIAMS, manager of the Detroit office of the Ferry Cap & Set Screw Co., Cleveland, died July 30, following a short illness of pneumonia. He was a graduate of Brown University and had been connected with the Ferry Cap & Set Screw Co. since December, 1917. He was appointed manager of the Detroit office Jan. 1, 1919.

GEORGE W. HAMPSHIRE, manager of the Detroit office of the Colonial Steel Co., Pittsburgh, for the past six years, died on Aug. 18, at the age of 47 years. He is survived by his widow, who lives in Detroit.

WILLIAM SMITH FOSTER, president and active head of the Foster Brothers Mfg. Co., Utica, N. Y., manufacturer of bedsteads and springs, died at his home in that city, Aug. 19, following a sudden heart attack. He was 76 years old.

HARRY F. RANDOLPH, for a number of years chief engineer Pittsburgh Coal Co., Pittsburgh, but more recently engaged as a consulting coal mining engineer with headquarters in Pittsburgh, died at Mt. Hope, W. Va., Aug. 23. He was born in Johnstown, Pa., 48 years ago and was educated at Swarthmore College and Johns Hopkins University.

American machinery exports to Peru showed a gain of 68 per cent in 1923, increasing from $1,179,748 in 1922 to $1,981,251 last year, according to the industrial machinery division of the Department of Commerce. Principal increases during 1923 took place in exports of mining, oil well, pumping and construction and conveying machinery.

Machinery Markets and News of the Works

QUIET WEEK IN MACHINERY

Little Business of Importance Has Developed in Any Section of Country

Requirements of Chicago Board of Education for Technical Schools Most Attractive of Pending Inquiry

Little of interest has developed in the machine-tool markets of the country in the past week to indicate a definite trend toward improvement, although reports from several centers are slightly more encouraging.

Requirements of the Chicago Board of Education for technical schools in that city constitute the most important business now pending. In addition to a large list for the Crane High School, previously mentioned, the school body has asked for prices on numerous metalworking and woodworking machines for the Tilden school.

The Mather Stock Car Co., Chicago, has put out a fair-sized list of new or used equipment it will buy.

The largest purchasing of the week was done by the Santa Fe Railroad, which placed orders for fully $150,000 worth of shop equipment, the orders being well scattered, some going to dealers on the Pacific Coast. The Youngstown Sheet & Tube Co. is closing on a list of tools for Indiana Harbor. Clayton, Mark & Co. have bought tools for a new pipe mill in Chicago.

Chicago, in fact, is one of the most active spots in the machine-tool selling territory. In the East conditions are quiet, and in the Detroit automobile district, normally quite active, there has been very little buying recently.

Cincinnati machine-tool manufacturers report that August business was better than that of either June or July, but there are some also who did not do so well in August as in the month preceding. Conditions are spotty and a considerable way from being good anywhere. Canada reports an active machine-tool demand.

New York

NEW YORK, Aug. 26.

BUYING of machine tools has not been active in the past week. A few orders have been placed, mostly for single tools. Formal orders have been awarded to a large machine-tool company by the Brooklyn Edison Co. for 15 to 18 tools, including a 42-in. x 24-ft. engine lathe, a 36-in. x 8-ft. planer, a 5-ft. radial drill and 12 or 15 smaller tools, such as milling machines, shapers and drilling machines. The El Paso & Southwestern Railroad has placed an order in the East for a 6-ft. radial drill and the Chicago, Rock Island & Pacific has bought a 400-ton hydraulic wheel press.

Contract has been let by the New York Central Railroad Co. to the Austin Co. for a one-story car repair shop at its Gibson yards, Hammond, Ind., 90 x 130 ft., to cost about $45,000.

The State Electric Works, Montevideo, Uruguay, is asking bids until Sept. 15, for 37,750 iron supports for aerial wires.

The Taranaki Electro Power Board, Eltham, Victoria, Australia, is taking bids until Oct. 7, for 74 power transformers, to reduce from 6000 to 400 volts, for use in connection with the hydroelectric generating stotions of the board.

Mack Trucks, Inc., 25 Broadway, New York, manufacturer of motor trucks and parts, is arranging for the sale of additional common stock in an amount of $4,500,000, a considerable portion of the proceeds to be used for expansion in plants and production facilities, particularly in the line of motor buses and gasoline cars for railroads.

Nathan Rothsky, 311 Lenox Avenue, New York, architect, has completed plans for a two-story automobile service garage and repair building, 81 x 115 ft., at the Southern Boulevard and 185th Street, estimated to cost $75,000. The same architect is also preparing plans for a similar building on the Southern Boulevard, near 167th Street, one-story, 100 x 150 ft., to cost approximately $45,000.

The R. K. LeBlond Machine Tool Co., Madison Street and Edwards Road, Cincinnati, has purchased through its president, R. K. LeBlond, property on Van Dam and Rockdale Streets, Long Island City, totaling about 50,000 sq. ft., as a site for a multi-story factory branch and distributing works.

The Hammarlund Mfg. Co., 144 West Eighteenth Street, New York, manufacturer of radio equipment and parts, has leased space in the building at 424 West Thirty-third Street, for plant extensions.

The City Council, White Plains, N. Y., will build a one-story automobile service, repair and garage building in connection with a new three-story municipal building at 229-31 Main Street. A general contract has been awarded to G. E. Gibson & Co., 103 Park Avenue, New York.

Officials of the Standard Oil Co. of New Jersey, 26 Broadway, New York, and of the General Motors Corporation, General Motors building, Detroit, have organized jointly a new company under Delaware laws, t o be known as the Ethyl Gasoline Corporation, capitalized at $5,000,000, to install and operate gasoline refining plants and distributing works. Charles F. Kettering, vice-president of the General Motors Corporation, has been elected president of the new company.

Leon Baxter, Albion Street, Elmhurst, L. I., has filed plans for the erection of a two-story plant, 40 x 100 ft., on Albion Street, near the Queens Boulevard, estimated to cost $26,000, to be used for the manufacture of hardware products.

The Plattsburg Foundry & Machine Co., Plattsburg, N. Y., is planning for the installation of a number of machine tools and other equipment, including an engine lathe, planer, boring mill, radial drill, milling machine, etc., and will soon make purchases.

The engineers Gold Mines, Ltd., Atlin Lake, B. C., plans for the construction of additional units at its hydroelectric generating plant, of which the first unit is now in course of building.

J. M. Felson, 250 West Fifty-seventh Street, New York, architect, has completed plans for a one-story automobile service, repair and garage building at 1756-64 Avenue A, estimated to cost $50,000, with equipment.

The Electric Safety Razor Corporation of America, 233 Broadway, New York, has leased space in the new building recently completed at 90 Sunswick Street, Long Island City, for a local plant.

D. J. Levinson, 163 Jamaica Avenue, Jamaica, L. I., architect, has completed plans for the erection of a one-story automobile service, repair and garage building, 45 x 260 ft., at Eighty-eighth Avenue and 131st Street, Richmond Hill, L. I., to cost about $70,000.

The Bakelite Corporation, 230 Grove Street, Bloomfield, N. J., manufacturer of molded rubber products, etc., has awarded a general contract to Enstice Brothers, 111 Academy Street, Newark, N. J., for a two-story addition, estimated to cost $60,000, with equipment.

Following the recent sale of the foundry at the plant of the Gillespie-Eden Corporation, Market Street, Paterson, N. J., to the Eagle Iron & Brass Foundry Co., Passaic, N. J., the remainder of the plant has been taken over by new interests, which propose to remodel and occupy at an early

The Crane Market

ACTIVITY this month in overhead traveling cranes has thus far been largely confined to awards. Only a few inquiries are current in the New York district, but sellers are optimistic as to the immediate future. The American Smelting & Refining Co. will probably close soon on the two 10-ton overhead cranes recently inquired for. The Lehigh Valley Railroad's inquiry for a 10-ton gantry crane is still pending. A fairly large list of cranes is still to be purchased by the Southern Railway. Stone & Webster, Boston, have received quotations on a 75-ton power house crane. Cranes needed by the Shibaura Engineering Co., Tokio, recent purchasers of a large machine tool list, are stated to have been awarded to a Japanese engineering company. The Edgemoor Iron Co., Philadelphia, has purchased a 10-ton, 19-ft. span riveting tower crane.

Crane business in the Pittsburgh district still is dull, but a few orders have been placed. The Bethlehem Steel Co. has completed tabulation of bids on the 32 cranes for its Lackawanna and Cambria plants, and some awards are expected shortly. It is understood that two ladle cranes for the Lackawanna works have been placed with an Ohio builder. Not in the list of cranes for Cambria works is a 50-ton power house crane, which is looked upon as a bright prospect. The Carnegie Steel Co. is believed to be near the closing stage on two large cranes for its Homestead works.

Among recent purchases are:

New York Transit Corporation, Brooklyn, N. Y., a 25-ton overhead traveling crane from the Northern Engineering Works, and two 15-ton electric traveling cranes from Alfred Box & Co.

West Virginia Pulp & Paper Co., 200 Fifth Avenue, New York, a 10-ton, 46-ft. span hand power crane, reported last week to have gone to Maris Brothers, placed with Alfred Box & Co.

Lukens Steel Co., for New Orleans, La., warehouse, a 10-ton, 77-ft., 7½-in. span overhead traveling crane, from the Shepard Electric Crane & Hoist Co.

Champion Fibre Co., Canton, N. C., a 4-ton, 31-ft. 8-in. span overhead crane from the Shepard Electric Crane & Hoist Co.

Boynton Furnace Co., Jersey City, N. J., a 3-ton, 16-ft. 27-in. span single I-beam crane, from the Shepard Electric Crane & Hoist Co.

Cleveland Worm & Gear Co., Cleveland, one 5-ton, 3-motor, 46-ft. 11-in. span overhead crane, from the Northern Engineering Works.

Wheeling Steel Corporation, Wheeling, W. Va., for Wheeling Corrugating Co., one 5-ton, 3-motor, 48-ft. span overhead from the Northern Engineering Works.

Fitzgibbons Boiler Works, Oswego, N. Y., one 10-ton, 3-motor, 80-ft. span overhead crane, from the Northern Engineering Works.

Westinghouse Electric & Mfg. Co., two 5-ton, 1-motor traveling wall cranes, from the Milwaukee Electric Crane & Mfg. Co.

date for the manufacture of iron and metal products. The plant, which has 250,000 sq. ft. of floor area, has been valued at $1,250,000. The Eagle company will use the local foundry in the near future. The Gillespie-Eden Corporation was active at the plant during the war period in the manufacture of munitions.

Arrangements are being perfected for a consolidation of the Edison Phonograph Works, West Orange, N. J., manufacturer of talking machines and parts, with Thomas A. Edison, Inc., West Orange, under the last noted name.

Fire destroyed a portion of the plant of the Clifton Automobile Body Co., Gregory Avenue and Burgess Place, Clifton, N. J., with loss estimated at $15,000. Plans for rebuilding are under advisement, with replacement of destroyed machinery.

The Martian Mfg. Co., 171 Washington Street, Newark, N. J., manufacturer of machinery and parts, plans for the purchase of a power press. Charles Marti heads the company.

Fire destroyed part of the coal storage pockets, with hoisting and loading machinery, of the Wyoming Valley Coal Co., foot of Riverside Avenue, Passaic River, Newark, N. J., with loss estimated at $100,000. It is proposed to rebuild, installing new machinery.

Catalogs Wanted

C. Hofman & Co., Post Box 75, Aarhus, Denmark, is desirous of receiving catalogs of concrete-mixing machinery and all machinery covering the handling and laying of cement, asphalt and the like.

Philadelphia

PHILADELPHIA, Aug. 26.

BIDS will be received by the Bureau of Supplies and Accounts, Navy Department, Washington, until Sept. 2 for 64 chain hoists, for use at the Philadelphia and Mare Island navy yards, schedule 2569.

Chaitt Brothers, Philadelphia, operating the Wyneava Garage, 152 West Logan Street, have awarded a general contract to H. Hardy & Co., 1713 Sansom Street, for a one-story service, repair and garage building, 115 x 144 ft., at Evergreen and Swayne Avenues, to cost about $45,000.

The Sun Oil Co., Philadelphia, operating oil refineries at Marcus Hook, Pa., and other points, is disposing of a bond issue of $10,000,000, a portion of the proceeds to be used for extensions and improvements. J. Howard Pew is president.

The Killian Roller Bearing Co., Philadelphia, has acquired a tract of land at 5044 Westminster Avenue, to be used for later plant extensions.

The Bureau of Automobiles, City Hall, a new department recently created with Franklin G. Carr as chief, has work in progress on a municipal service, repair and garage building at Twenty-first and Market Streets, remodeling an existing building to include a machine shop, repair, radiator and metal-working shop. It will have a capacity of more than 100 cars.

Y. P. Womenberg, Philadelphia, operating a machine and repair works at 4121 North Sixteenth Street, has filed plans for a one-story addition to cost about $10,000, for which a general contract has been let to J. Y. Loux, Fifteenth and Huntington Streets.

The Foreign Trade Bureau, Philadelphia Commercial Museum, Thirty-fourth Street, has received an inquiry (42569) from Junta Directiva, Av. Corona 162, Guadalajara, Mexico, in the market for modern machinery for the manufacture of furniture and asking a list of manufacturers; an inquiry (42556) from Gomes, Casseres, Uribe y Compania, Apartado de Correo No. 61, Barranquilla, Colombia, desiring to get in contact with American manufacturers of steam boilers, trunk hardware, iron and steel bars, ingots and tubes, railroad and tramway supplies, tool and construction steel, brewers' and bottlers' machinery and carbonating machinery; an inquiry (42574) from E. S. Hayashi, P. O. Box 222, Hilo, Hawaii, desiring to purchase American machinery for the manufacture of toothpicks; an inquiry (42558) from Al. Schryber, 40 Rue de Monthoux, Geneva, Switzerland, desiring to get in touch with American manufacturers of materials and tools for foundries, especially for modeling work; an inquiry (42577) from Charles N. Neaumon & Co., Hauquilla Street, No. 1128 altos, Lima, Peru, desiring to get in contact with American manufacturers of machinery and equipment for the manufacture of pressed paper toys; an inquiry (42571) from Norberto Fuentes Garcia, Apartado 74, Manzanillo, Cuba, desiring to get in touch with American manufacturers of gilt wire, rolled gold wire and plated gold wire, for use in jewelry manufacture.

J. Frank Clark, 23 South Sixteenth Street, Philadelphia, architect, has prepared plans for three automobile service, repair and garage buildings in different localities, including a two-story structure, 65 x 85 ft., on Clearfield Street, near Frankford Avenue; a one-story garage, 102 x 120 ft., at Twenty-fourth and Reed Streets, and a one-story garage at Twenty-fourth and Wharton Streets, to cost collectively about $90,000 with equipment.

Fire destroyed a portion of the plant of the J. E. Marsden Glass Co., Brookside Avenue, Ambler, Pa., including foundry, machine shop, cutting department and packing department, with loss estimated at $100,000 including machinery. Plans for rebuilding are under consideration.

The Board of City Commissioners, Trenton, N. J., has authorized a fund of $180,000 for the purchase of the machine shop and equipment of the John E. Thropp Sons' Co., Lewis Street, to be used as a municipal machine and repair works for all city departments.

The Thomas Maddock's Sons Co., Perry Street, Trenton, N. J., manufacturer of sanitary ware, has work in progress on its proposed new plant at Hutchinson's Mills, Hamilton Township, near Trenton, with main building 225 x 1500 ft., to include a machine shop, power house and other mechanical structures. It is expected to install machinery in the fall. It will cost approximately $1,000,000. The C. J. Smith Construction Co., Trenton, is the general contractor. W. E. S. Dyer, Philadelphia, is engineer.

The Haines, Jones & Cadbury Co., 1136 Ridge Avenue, Philadelphia, manufacturer of plumbing equipment and supplies, is having revised plans drawn for a one-story factory branch and distributing works on South Main Street, near Garfield Street, Wilkes-Barre, Pa., 98 x 196 ft., and will call for bids on general contract at an early date. McCormick & French, Second National Bank Building, Wilkes-Barre, are architects.

The Lehigh Coal & Navigation Co., Lansford, Pa., will replace all steam-operated equipment at its No. 10 colliery, near Lansford, with electric-driven apparatus, electrifying the plant in all departments.

James W. Boyle, Freeland, Pa., will remodel a local foundry on Johnson Street for an automobile service, repair and garage building, to be two-story, 66 x 300 ft., including addition to be constructed, to cost about $50,000 with equipment. J. B. Chamberlain, Hazleton National Bank Building, Hazleton, Pa., is architect.

The Marmon-Harrisburg Co., Harrisburg, Pa., recently organized to represent the Marmon automobile in this section, has acquired the plant and equipment of the Keystone Electric Welding & Brazing Co., 2424 Raleigh Street, and will operate a general service and repair works at this location. Later expansion is planned. S. P. Nissley is president and general manager.

The Penn Hardware Co., foot of Spruce Street, Reading, Pa., manufacturer of builders' hardware, etc., has awarded a general contract to C. H. Schlegel, Twenty-third Street and Perkiomen Avenue, Mount Penn, Pa., for the erection of a two-story addition, estimated to cost $60,000, including improvements in the present factory. Frederick A. Muhlenberg, Ganster Building, Fifth and Walnut Streets, Reading, is architect.

The Bucks-Bensalem Electric Co., Langhorne, Pa., now being organized, is planning the construction of a power house in lower Bucks County for light and power service in this district. A hearing for the company's application for a charter has been set for Sept. 8. It is represented by Hause, Evans & Baker, Harrisburg, Pa., attorneys.

The Philadelphia Commercial Body Co., Philadelphia, manufacturer of automobile bodies, has leased a portion of the building at 2532-34 North Broad Street for a new plant.

Pittsburgh

PITTSBURGH, Aug. 25.

MACHINE tool orders are being placed with more frequency, but as a rule they represent requirements for which special appropriations are not required, and in most cases have been pending for some time. New inquiries are not very numerous, but the belief prevails that, starting with September, there will be improvement in that direction, especially if the upward trend of steel business continues. In this district, the steel business is the key to practically all business.

Revised plans are being prepared by the Gem Mfg. Co., 1200 Goebel Street, Pittsburgh, manufacturer of metal stampings, metal novelties, etc., for a one-story addition, 80 x 130 ft., to cost about $25,000. Bids recently received have been rejected, and new bids will soon be asked. E. S. Fownes is president.

Cullin & Buchalla, 1310 Unity Street, Pittsburgh, will begin the erection of a two-story automobile repair works, 20 x 25 ft., with one-story extension, 20 x 60 ft., at 4450 Leiper Street. A list of equipment to be installed will soon be arranged.

The Board of Education, Industrial, W. Va., plans for the installation of manual training equipment in a two-story and basement high school, estimated to cost $110,000, for which a general contract has been awarded to A. D. Rowe, 745 Mulberry Street, Clarksburg, W. Va.

The Guyan Machine Shops, Logan, W. Va., have inquiries out for a locomotive type crane, mounted on tractor, with clam-shell bucket, electrically-operated; also, for one wheel press, about 250 tons capacity, equipped for motor drive. And, for one pumping engine, gas-driven, with capacity of 500 gal. per min.

The Independent School District, Hinton, W. Va., plans for the installation of manual training equipment in its proposed two-story and basement high school, estimated to cost $115,000, for which plans are being drawn by Wysong & Bentson, Professional Building, Charleston, W. Va. W. E. Price is president of the school board.

The Service Garage & Motor Co., Pulaski, W. Va., has plans under way for the construction of a one-story service and repair building, with garage, to cost about $37,000.

The Capstan Glass Co., Connellsville, Pa., with plant at South Connellsville, is planning for enlargements, to include the installation of a new furnace and auxiliary equipment, for which it is expected to place contracts at an early date. The company manufactures glass containers.

Schnicke & Brooker, Woolworth Building, Greensburg, Pa., architects, have completed plans for the erection of a two-story automobile service, repair and garage building, 75 x 100 ft., at Jeannette, Pa., estimated to cost $40,000, with equipment.

Manual training equipment will be installed in the two-story and basement high school to be erected at Duryea, Pa., estimated to cost $250,000, for which bids will be asked on a general contract about Sept. 15. Frank J. Miller, Brooks Building, Scranton, Pa., is architect.

The Welch-Northfork Buick Co., Northfork, W. Va., is planning for the rebuilding of the portion of its service, repair and garage building, recently destroyed by fire with loss estimated at $35,000.

A general contract has been awarded to S. N. Brown, for the construction of a four-story, brick addition to the plant of the Crescent Furniture Co., Warren, Pa., for which considerable woodworking machinery and equipment will be required.

Chicago

CHICAGO, Aug. 25.

ORDERS for machine tools are gathering momentum and inquiries are more widely distributed, giving the entire market a more encouraging tone. The Santa Fe has concluded purchases against its list and is estimated to have ordered $150,000 worth of equipment. Orders were divided among numerous dealers, including some on the Pacific Coast. The Youngstown Sheet & Tube Co. is finally closing against its long standing inquiry for Indiana Harbor. Among the tools already ordered are an 18-in. engine lathe, a shaper, a 24-in. engine lathe and a Blanchard grinding machine. Clayton Mark & Co. have placed a number of orders for used equipment for their new pipe mill in this city. The Chicago, Burlington & Quincy has inquired for two pedestal motor-driven dry grinding machines to carry 18 x 3-in. wheels. The Chicago Board of Education has received revised figures on 59 engine lathes for the Crane High School and has also readvertised for new figures on the other machines for that school. A list of woodworking machinery for the Tilden High School has also been issued.

The city of Milwaukee is inquiring for a 3-ft. radial drill for the Riverside Pumping Station. A new company in a western suburb of Chicago has bought a number of small tools, involving a total of $3,000. Demand for power presses has improved and business in used tools is good.

Little interest is manifested in the market by automobile manufacturers, but orders for special purpose equipment are expected to be placed within a month or two for the Ajax Motors Co. plant, formerly the Mitchell works, Racine, Wis. It is reported that this plant will be devoted to the manufacture of a light six-cylinder automobile to sell in the neighborhood of $550. The Mather Stock Car Co., 326 North Michigan Avenue, Chicago, is inquiring for a number of new or used machine tools.

Chicago Board of Education
(Machine Tool List for Tilden High School)

Four motor-driven universal milling machines with 28-in. length feed.

Two motor-driven back-geared 12-in. shapers.

Two motor-driven back-geared 14-in. shapers.

Three 20-in. motor-driven wet grinding machines.

Two 2-spindle motor-driven high-speed drill presses.

One motor-driven centering machine, capacity 0 to 3 in.

(Tools for Tilden High School Wood Shop)

Two motor head speed lathes, 12-in. x 40 in. between centers.

Thirty motor head speed lathes, 12-in. x 24 in. between centers.

One motor-driven mortising machine.

Two 6-in. portable hand planers and jointers, motor-driven.

Four motor-driven Variety oil stone tool grinders.

One 20-in. motor-driven hand planer and jointer.

Six three-heat all copper dry jacketed electric glue heaters.

Mather Stock Car Co.

(New or good second-hand machinery desired)

One swing cut-off saw with motor base, large enough to cut 5 x 9-in. timbers, to carry saw up to 36-in.

One 5-spindle wood-boring machine, belt-driven, to bore holes from 7/16 up to 15/16 in.

One gaining machine to make gains from ⅛ to 2½ in. deep and 2 in. to 14½ in. long.

One 36-in. belt-driven band saw.

One small punch for punching out flat steel diaphragms up to ¼ in. thick.

One shaper for making dies, with stroke from 28 to 30 in.

The Beckwith Iron Works, 540 West Seventy-ninth Street, Chicago, has purchased 133,000 sq. ft. in the State Manufacturing District, with a west frontage of 150 ft. on State Street and running 850 ft. along the Belt Railway, from which a switch track will be installed. The company will build a plant, 100 x 250 ft., to be ready for use next spring. The cost of the building and property is estimated at $125,000.

The A. L. Hansen Mfg. Co., manufacturer of metal specialties, 1776 Winnemac Avenue, Chicago, has awarded a contract for a three-story addition, 27 x 125 ft., to cost $25,000.

The Birtman Electric Co., 600 West Lake Street, Chicago, has awarded a contract for a one and three-story factory, 138 x 144 ft., 4132-48 Fullerton Avenue, to cost $200,000.

The Crowe Name Plate Co., 1749 Grace Street, Chicago, has awarded contracts for a two-story factory, 60 x 100 ft., 3831-35 Ravenswood Avenue, to cost $25,000.

M. Hummell, 160 Fulton Street, Chicago, has awarded a contract for a one-story machine shop, 71 x 92 ft., 1932-36 West Austin Avenue, to cost $12,000.

Clayton Mark & Co., 111 West Washington Street, Chicago, manufacturer of galvanized and black wrought pipe, and of conduit, has awarded to the Austin Co. a contract for the design and contruction of a galvanizing plant, 90 x 120 ft., adjacent to the company's mill at Seventy-fourth and Robey Streets, to cost $30,000.

The Mid-West Foundry, St. Anne, Ill., was recently seriously damaged by fire.

Albert Griebel has opened a machine shop in his garage at 325 Lake Avenue, Elgin, Ill.

Bids will be received by the city clerk, Centralia, Ill., until Sept. 4, for pumping equipment for a municipal water filtration plant, consisting of two steam turbine driven low-lift centrifugal pumps, each with capacity of 3,000,000 gal. per 24 hr., and one steam turbine wash water centrifugal pump, with capacity of 5,000,000 gal. per 24 hr.; also, chemical feed apparatus, operating tables, etc. Pearse, Greeley & Hansen, 6 North Michigan Avenue, Chicago, are engineers.

The Pence Automobile Co., 800 Hennepin Avenue, Minneapolis, Minn., will begin the erection of a one-story service, repair and garage building at First Avenue, North, and Eighth Street, estimated to cost $80,000. Harry E. Pence is president.

The Department of the Interior, Bureau of Reclamation, Denver, Colo., will take bids until Sept. 29 for furnishing two 6000-hp. hydraulic turbines, two 5000-kva. generators, transformers, switching apparatus and auxiliary equipment for the Black Canyon power house, Boise project, Idaho. Plans on file at office noted, or offices of the bureau at Washington, D. C., and Boise, Idaho.

The Standard Oil Co. of Indiana, Peoria, Ill., J. R. Coleman, district manager, plans for the construction of a one-story machine shop and automobile service and garage building at Bond and Voris Streets, estimated to cost $55,000, with equipment.

The Village Board of Trustees, Pickneyville, Ill., have authorized a bond issue of $50,000 for betterments and improvements to the municipal water works. The work will include the construction of a new filtration plant, settling basins, etc., and the installation of pumping machinery and equipment.

New England

BOSTON, Aug. 25.

ALTHOUGH more encouraging reports are had from Bridgeport and some other Connecticut points, sales of machine tools in this market the past week continued few and far between. Most of those tools that did change hands were of little importance. The sale of a large used vertical surface grinder to a French concern is the most noteworthy transaction reported. New inquiries are again scarce. Shops are more interested in special production equipment than in anything else. Small tools, gages and machine parts are in good demand. New England railroad shops are buying more of such things than they have in months. Active buying of small tools usually is a forerunner of machine tool buying. General sentiment here is that business will show a material improvement this coming month.

The Geometric Tool Co., New Haven, Conn., is out with a new catalog on Jarvis tapping devices and quick change chucks, which shows revised specifications in the latter.

The Remo Corporation, Meriden, Conn., radio, electric and automotive specialites has been organized with a capitalization of $50,000, to begin manufacture as soon as manufacturing quarters and equipment can be obtained. A popular-priced radio speaker and a radio receiving set of the neutrodyne type will be among the first products made. Fred Rees and Burton C. Rogers, both of Meriden, are the active members of the company.

The Reliance Mfg. Co., New Haven, Conn., recently formed with a capital of $400,000, will take over and expand the plant and business of the Reliance Air Spring Co. The new organization is headed by C. G. Swebilius, Louis Lear and John F. Moran, 785 Forest Road, New Haven.

Bids will be received by the Bureau of Supplies and Accounts, Navy Department, Washington, until Sept. 2, for 1500 lb. seamless copper tubing for the Portsmouth, N. H., navy yard, schedule 2584; also, at the same time, for 25,200 lb. wrought iron for the Boston yard, schedule 2595.

The Western Electric Co., Inc., 385 Summer Street, Boston, has leased for a term of 25 years, a new five-story and basement building to be erected on Columbus Avenue, near the Back Bay Station, for a new factory branch and distributing works. The present plant will be removed to the new location. The building will cost in excess of $100,000. The Aberthaw Construction Co., 27 School Street, has the general contract.

The American Tube & Stamping Co., Bridgeport, Conn., has awarded a contract to the Riter-Conley Co., Pittsburgh, for the erection of two new one-story additions, 72 x 310 ft., and 72 x 120 ft., to be equipped primarily for the rolling of strip steel.

W. L. Minor, 60 Pemberton Square, Boston, architect, has prepared plans for a one-story automobile service, repair and garage building, 100 x 350 ft., on Main Street, Brockton, Mass., to cost about $75,000, for which ground will soon be broken.

The Gillette Safety Razor Co., West First Street, South Boston, will begin the erection of a two-story power plant at its factory, 70 x 75 ft., estimated to cost $50,000, for which plans have been drawn by Charles T. Main, 200 Devonshire Street, Boston, architect and engineer.

The International Harvester Co., 605 Michigan Avenue, Chicago, has superstructure work in progress on the proposed one-story service, repair and garage building, 100 x 145 ft., at 63 North Beacon Street, Brighton, Boston, for its motor truck division. The D. E. McIntyre Co., Inc., 74 Broad Street, Boston, has the general contract for the work.

The Common Council, Montag[illegible] City, Mass., is said to be considering plans for the installation of a municipal electric lighting station and system, estimated to cost $50,000. E. L. Faber is head of the committee in charge.

The Biever Motor Co., 1079 Chapel Street, New Haven, Conn., is taking bids on a general contract for the erection of a one-story service, repair and garage building on Whalley Avenue, near Garden Street, 50 x 150 ft., and 70 x 140 ft., estimated to cost $80,000. R. W. Foote, 185 Church Street, is architect.

The Smith Carriage Co., 2 Park Street, Springfield, Mass., N. H. Fowler, president, manufacturer of automobile bodies,

carriages, etc., will soon begin work on a four-story and basement plant, 100 x 157 ft., at Park and Willow Streets, estimated to cost $150,000, for which a general contract has been let to the E. F. Carlson Co., 244 Main Street. H. C. Hearne, 387 Main Street, is architect.

The Board of Education, Newburyport, Mass., is considering the installation of a manual training department in its proposed high school, estimated to cost $200,000, for which preliminary plans are being prepared by Edwin S. Dodge, 15 Exchange Street, and McLaughlin & Burr, 88 Tremont Street, Boston.

The Gillette Safety Razor Co., West First Street, South Boston, has awarded a contract for the erection of a one-story, 75 x 75 ft. compressor plant. Charles T. Main, 200 Devonshire Street, Boston, is the engineer.

A permit has been granted Stowe & Woodward Rubber Co., 18 Oak Street, Newton, Mass., to erect a one-story, 105 x 60 ft. manufacturing plant for which miscellaneous equipment is required. Plans are private.

Bids close Sept. 5 for an intermediate school, to cost $400,000, on Maverick, Orleans and Everett Streets, East Boston, contemplated by Boston. Thomas L. Glinn, City Hall Annex, is chairman of the committee in charge of the proposition. The school will house most mechanical trades.

John I. Paulding, Inc., Kings Highway, New Bedford, Mass., electrical supplies, has awarded a contract for the erection of a two-story, 30 x 50 ft. plant addition.

The Reliance Mfg. Co. was recently incorporated at New Haven, Conn., to carry on the business formerly owned by the Reliance Air Spring Co. The capital stock is $400,000. The incorporators are: John F. Moran, 785 Forest Road; Louis Lear, 340 Orange Street, and C. B. Swebilius, 131 Eagle Street, all of New Haven.

By order of the United States District Court, the plant of the Driggs Ordnance and Mfg. Co. at New Haven, Conn., will be sold Sept. 5.

The E. Ingraham Co., clock manufacturers, Bristol, Conn., is planning erection of three additions to its plant to cost $40,000. An addition will be built to the main factory building in the form of another story, 200 x 65 ft., also an 80 x 80 ft. addition to the warehouse. Additional mechanical equipment will be required.

Work has been started on the new factory building for the Paulson Tools, Inc., Wallingford, Conn. The company manufactures tools used in railroad work. The building will be 40 x 80 ft., one story, and of mill construction. Additional mechanical equipment will be required.

Buffalo

BUFFALO, Aug. 26.

PLANS have been filed by the Ellicott Motor Service Corporation, Marine Trust Building, Buffalo, for the erection of a one-story service and repair shop at 1971 Main Street, on which work will proceed immediately.

The Bennett Mfg. Co., Alden, N. Y., manufacturer of metal specialties, has awarded a general contract to the H. K. Ferguson Co., Euclid Avenue, Cleveland, for the erection of a one-story plant, 120 x 160 ft., with extension, 40 x 50 ft., and one-story boiler house, estimated to cost $70,000. It will replace a works recently destroyed by fire.

The Beaver Dams Light & Power Co., Beaver Dams, N. Y., has plans under consideration for extensions in its electric power plant, with the installation of additional equipment for increased output. Additions will also be made in the transmission system. H. B. Owen is president.

Manual training equipment will be installed in the three-story and basement high school to be erected at Seneca Falls, N. Y., estimated to cost $300,000. A general contract has been let to the Strandberg Brothers Co., 608 South Dearborn Street, Chicago.

The Meldrum Motor Corporation, 1081 Main Street, Buffalo, has taken out a permit for the erection of a one-story service and repair building at 1531 Jefferson Street, to cost approximately $20,000 exclusive of equipment.

The Republic Light, Heat & Power Co., Dunkirk, N. Y., has work under way on an addition to its power plant on the Lake Road, and will install equipment for increased output.

Manual training equipment will be installed in the new two-story high school to be erected at North Tonawanda, N. Y., estimated to cost $275,000, for which bids will be asked on a general contract about Sept. 2. Tooker & Marsh, 101 Park Avenue, New York, are architects.

The Worthington Pump & Machinery Corporation, Clinton and Roberts Streets, Buffalo, has awarded a contract to the Austin Co., Euclid Avenue, Cleveland, for additions to its local plant, estimated to cost $45,000.

The Commissioner of Public Works, Municipal Building, Buffalo, will receive bids until Sept. 15 for the construction of a pumping plant, head house and filter house at the new filtration plant for the municipal waterworks. George C. Andrews is engineer, filtration division.

The Buffalo General Electric Co., Electric Building, Buffalo, has filed plans for a four-story building, 75 x 100 ft., at 41-49 East Genesee Street, to cost about $75,000.

Manual training equipment will be installed in the new high school to be erected at Johnstown, N. Y., estimated to cost $325,000, for which it is expected to ask bids at an early date. Tooker & Marsh, 101 Park Avenue, New York, are architects.

The J. W. Pullman Foundry Co., manufacturer of light castings, Buffalo, N. Y., has filed plans for the construction of a one-story foundry building at 287 Baltz Avenue, to cost about $25,000 with machinery and equipment.

The Water Board, Waverly, N. Y., is arranging a bond issue of $48,000, recently approved at a special election, the proceeds of which are to be used for extensions and improvements to the municipal water works system.

A general contract has been awarded to John B. Pike & Son, Rochester, N. Y., for the construction of the first unit of a new plant on Humboldt Street, Rochester, to cost $200,000, for the Stromberg-Carlson Telephone Co., manufacturer of telephone instruments, radio equipment and other electrical products.

The Marr & Colton Organ Co., Warsaw, N. Y., has awarded a general contract to the Better Building Corporation for the construction of a one-story addition, 49 x 96 ft. Dry kiln machinery and other equipment will be required.

Cleveland

CLEVELAND, Aug. 25.

MACHINERY sales continue rather light and few orders are coming out for more than single tools. However, the volume of business still shows some gain over last month and the number of live inquiries has increased. Several fair-sized lots of machinery are pending, but it is not expected that much of the business will be placed until there is considerable revival in general business conditions. Some of the metalworking shops in Cleveland are busier than a month ago, but there is little, if any, increase in the number of men employed. A Cleveland manufacturer has taken an order for two turret lathes for the Santa Fe Railroad. No new railroad inquiries have appeared. Very few machinery purchases are being made by the automotive industry either in Detroit or Cleveland.

The American Shipbuilding Co. has taken bids for rebuilding some of its factory buildings at its Lorain, Ohio, plant that were damaged in the recent tornado. These will include a one-story tin shop, 68 x 100 ft., a two-story round house, 83 x 40 ft., and another one-story building, 245 x 136 ft.

S. Fix & Sons, 1826 Columbus Road, Cleveland, operating a boiler and tube-welding plant, have placed a contract for a one-story factory building, 53 x 70 ft.

A manual training department will be provided in a high school for Dillonvale, Jefferson County, Ohio, contract for which has just been awarded.

The Reeve Mfg. Co., Dover, Ohio, has awarded a contract for a two-story building, 100 x 100 ft., to be used for warehouse purposes.

The city of Girard, Trumbull County, Ohio, has taken bids for a $50,000 filtration plant. Two centrifugal pumps, motors and other equipment will be required.

The Cleveland Electric Illuminating Co. has taken bids for a $75,000 substation to be located at Lakewood, Ohio.

The Ward Railway Appliance Co., Lima, Ohio, has leased the plant of the Bernhard Boiler Co., and it is stated that it will be equipped for the manufacture of heavy locomotive and marine castings.

With the removal of the manufacture of the line of boring mills made by the Colburn Machine Tool Works, Cleveland, to the plant of the Betts Machine Works, Rochester, N. Y., the Colburn plant has been turned into a jobbing shop. A portion of the machinery has been moved to Rochester. It is the intention to sell the Colburn plant as soon as opportunity offers.

Officials of the Truscon Steel Co., Youngstown, Ohio, deny reports, emanating from the Pacific Coast, that the company is considering erection of a branch plant in that territory to supply its Far West, South American and Far East trade. The Truscon company now operates warehouses and fabricating plants at both Los Angeles and San Francisco. It also has a branch factory in Japan, where products for its Far Eastern trade are largely fabricated. Announcement is made that Youngstown will continue to be the one chief manufacturing center of the company.

Contracts have been awarded by the General Tire & Rubber Co., Akron, Ohio, for the construction of three factory additions, each three stories in height and to cost about $300,000. Considerable machinery and equipment, to include tire building, molding and transmission and conveying equipment, will be required.

Fire destroyed a portion of the plant and equipment of the Patterson Electric Co., 640 South Main Street, Akron, Ohio, with a loss to machinery, plant and equipment of $35,000. No plans for rebuilding have been announced.

The locomotive shops of the Pennsylvania Railroad at Dennison, Ohio, which have been operating on a part-time basis, resumed operations on a six day a week basis Aug. 20.

Cincinnati

CINCINNATI, Aug. 25.

THERE is a better tone to the machinery market and while business is somewhat spotty, more orders are being received, and inquiries are also more numerous. Some manufacturers report receipt of more orders in August than in either June or July, while others report a falling off. Generally, however, the market shows a slight improvement. There is a considerably improved demand also for repair parts, and this indicates that machine tools are being used. Close observers declare that with the passing of the vacation period there will undoubtedly come increased buying of machine tools, and this appears likely, as quite a large number of deals are now being held up until the return of executives from vacations. Further indications of strengthening prices are seen in advances made by two lathe manufacturers during the past week, the advances ranging from 5 to 15 per cent on various sizes.

The Union Gas & Electric Co., Cincinnati, has plans completed for an extensive building program during the next year. The company will erect a high-tension power line, on steel transmission towers, from the new power station at Fort Etaoinet, 15 miles from Cincinnati, and a transformer station will be erected at Carthage. The company also has plans for the erection of a large gas-producing plant in the east end of the city, and will build several gas holders in various sections of the city. W. W. Freeman is president.

The Meeker Mfg. Co., Dayton, Ohio, manufacturer of wheels of all kinds, is completing plans for the erection of a plant at 362 South Main Street, eventually to cost $300,000. At present one unit of the plant will be erected. Harry F. Rogge is president.

The village of Minster, Ohio, will issue $30,000 worth of bonds for the purpose of making extensive improvements to the municipal light plant. This will include installation of new machinery for generating electricity. A. H. Kramer is clerk of the council.

The Cambridge Body Mfg. Co., Cambridge, Ohio, recently organized, has awarded contracts for the erection of two additional buildings to increase manufacturing facilities. The company builds taxicab and bus bodies.

In connection with proposed extensions the Toledo Furnace Co., Toledo, Ohio, operated by Pickands, Mather & Co., Cleveland, will build a steam-operated electric power plant, with primary equipment to include a 10,000-kw. turbo-generator, two 1500-kw. motor-generator sets, boilers, etc., estimated to cost close to $450,000. The plant will be used for mill service, with surplus power to be purchased by the Toledo Edison Co. A high-tension substation will be constructed for this latter purpose. Froelich & Emery, Toledo, associated with Julian Kennedy, Pittsburgh, are engineers.

The Meeker Mfg. Co., Dayton, Ohio, manufacturer of axles, has plans for the erection of a two-story building at 326 Main Street, to cost about $40,000, comprising the first unit of a four-story structure, with ultimate cost placed at $225,000. The present works are located on Linden Avenue.

The Hodgson Machinery Co., Knaffl Building, Knoxville, Tenn., is planning for the purchase of complete machinery for an excelsior works, including cut-off saws and other woodworking equipment, industrial motors, baling press., etc., new or second-hand equipment in good condition.

Manual training and vocational departments will be installed in connection with the erection of a new junior high school at New Philadelphia, Ohio, for which a bond issue of $110,000 is being arranged. Walker & Norwich, Dayton, Ohio, are the architects.

St. Louis

ST. LOUIS, Aug. 26.

THE Doniphan Light & Ice Co., Doniphan, Mo., recently organized by Samuel C. Danner, P. O. Box 213, and associates, is perfecting plans for the construction of a small hydroelectric generating plant for local commercial service, to be increased in size at a later date. A list of equipment is being arranged and purchases will be made soon.

The Glenwood Gravel Co., Glenwood, Ark., has plans under consideration for extensions in its plant, and purposes to install digging, hoisting, conveying and other machinery to double approximately the present capacity. George Belding is president.

The Missouri Power & Light Co., Jefferson City, Mo., is disposing of a bond issue of $1,200,000, a portion of the proceeds to be used for extensions and improvements in power plants. The company is affiliated with the Illinois Power & Light Co., Chicago. Clement Studebaker, Jr., is president.

The Board of Education, Wewoka, Okla., plans for the installation of manual training equipment in its proposed three-story and basement high school, estimated to cost $150,000, for which bids will be asked on a general contract in the near future. Monnot & Reid, Empire Building, Oklahoma City, Okla., are architects.

The Hutchison Lumber Co., 510 South Frankfort Street, Tulsa, Okla., plans for the installation of additional equipment at its plant, including a portable conveyor, electric-operated, with car unloader, for handling sand and gravel. Inquiries for the last noted apparatus will be made at once.

The North American Co., St. Louis, operating the Union Electric Light & Power Co., and other utilities, is disposing of a preferred stock issue totaling $10,000,000, a portion of the proceeds to be used for extensions and improvements. Frank L. Dame is president.

The Kansas City Southern Railway is in the market for a 3-in. forge machine, a turret lathe and two 24-in. floor grinders.

The Common Council, Hartville, Mo., has rejected bids recently received for a municipal electric power plant, and will take new bids for building and equipment in the near future, including a 42 kva. waterwheel for hydroelectric generating service, alternator, 25 hp. oil engine, belted to 25 kva. electric alternator, switchboard and accessory equipment. The Alexander Engineering Co., Springfield, Mo., is engineer.

The Common Council, Cuba, Kan., is considering the installation of centrifugal pumping equipment in connection with a municipal waterworks and distributing system, estimated to cost $30,000. A special election to vote bonds will be held early in the fall.

Detroit

DETROIT, Aug. 25.

CONTRACT has been awarded by the Everhot Heater Co., 214 Woodbridge Street, Detroit, to the H. K. Ferguson Co., Cleveland, for the erection of a one and one-half story plant, 75 x 225 ft., on Lafayette Boulevard, near Seventeenth Street, estimated to cost $38,000. It will be equipped for the manufacture of electric heater apparatus.

C. N. Agree, 1333 Book Building, Detroit, architect, has plans in progress for the erection of a two-story automobile service, repair and garage building, 50 x 400 ft., on Burns Avenue, estimated to cost $85,000, with equipment, for which foundations will soon be laid.

The Board of Education, Lansing, Mich., plans for the installation of manual training equipment in its proposed two-story and basement high school, estimated to cost $450,000, for which plans are being prepared by J. N. Churchill, Lansing, architect.

The Board of County Commissioners, Bay City, Mich., has plans under consideration for the construction of a one-story automobile service, repair and garage building on site at the city limits for county trucks and cars.

Manual training equipment will be installed in the two-story and basement high school to be erected at Dearborn, Mich., estimated to cost $400,000, for which plans are being

prepared by the G. D. Mason Co., Standard Bank Building, Detroit, architect.

Conveyors, material-handling equipment, factory trucks and other mechanical equipment will be installed in the new warehouse and distribution plant of the Great Atlantic & Pacific Tea Co., Detroit, on Hecla Avenue, for which foundations have been started. It is estimated to cost $1,000,000, with machinery.

The Smith Motor Sales Co., 1444 Richfield Road, Flint, Mich., local representative for the Ford and Lincoln automobiles, has tentative plans under advisement for the construction of a one-story service, repair and garage building, estimated to cost $50,000. MacKensie & Pratt, 305 Genesee Bank Building, are architects.

The Detroit Edison Co., Detroit, will begin the construction of an automatic power substation at Monroe, Mich., with capacity of about 30,000 kw., estimated to cost more than $100,000, with equipment.

The Hupp Motor Car Corporation, Mount Elliott and Milwaukee Avenues, Detroit, has taken out a permit to construct a one-story addition, to cost approximately $25,000, on which work will proceed at once.

The Hoover Steel Ball Co., Ann Arbor, Mich., has purchased the plant and equipment of the Imperial Bearing Co., Detroit, manufacturing thrust and annular ball bearings. Operations will be consolidated at the Ann Arbor plants, equipment of the Imperial plant being removed to that place. S. A. Strickland, of the Imperial company, has been elected a director of the Hoover company and will be actively associated with that company.

Indiana

INDIANAPOLIS, Aug. 25.

BUILDING permits have been issued to the Northern Indiana Gas & Electric Co., Fort Wayne, Ind., for extensions in its gas generating plant, estimated to cost $2,500,000 with equipment. The work will include a boiler and producer gas plant, by-products plant, domestic screening station, generator building, truck and scale house, quenching station, gas holder and miscellaneous buildings.

The Arabian Motor Service Co., Indianapolis, recently organized will operate a general repair and service works at leased property, 2813 East Tenth Street. Chester F. Hoeflin heads the company.

The Cummings Vote Registering Machine Co., Knox, Ind., has preliminary plans in progress for the initial units of its proposed plant at Crown Point, Ind., for which a tract of 10 acres of land was purchased several months ago. It will consist of a number of brick and steel units, one-story, with power house, estimated to cost $350,000 with machinery.

The Cincinnati, Indianapolis & Western Railroad Co., Indianapolis, has purchased the car and locomotive repair shops of Hammond & Jeffers at Brazil, Ind., where work heretofore has been carried out for the railroad under contract. The company will continue the plant in operation, supplementing the shops at Moorefield, in the Indianapolis district, and is said to contemplate later extensions.

The Merchants Heat & Light Co., Indianapolis, has been granted permission to issue bonds for $260,000 and stock for $122,000, a portion of the proceeds to be used for extensions and betterments in power plant and system.

Pacific Coast

SAN FRANCISCO, Aug. 22.

PRELIMINARY plans are being considered by Fairbanks, Morse & Co., 900 South Wabash Avenue, Chicago, and 427 East Third Street, Los Angeles, manufacturer of pumps, engines, electric equipment, tanks, etc., for the erection of a new Pacific Coast plant on site purchased in the Los Angeles industrial district, to consist of several one-story units, estimated to cost $750,000, with equipment.

The California & Hawaiian Sugar Refining Co., San Francisco, has awarded a general contract to the Moore Dry Dock Co., foot of Adelaine Street, Oakland, Cal., for the erection of the proposed addition to its refinery at Crockett, Cal., to be one story, 260 x 460 ft., estimated to cost $1,000,000, with equipment. A portion of the structure will be used for distributing service. A. A. Brown, 215 Market Street, San Francisco, is consulting engineer.

The United States Metals Co., Huntington, Ore., is planning for the construction of a new concentrating plant at its Bay Horse mine, about nine miles from the city, estimated to cost close to $90,000, with equipment.

L. C. Maurer, 320 North Rampart Boulevard, Los Angeles, architect, is preparing plans for the erection of a four-story automobile service, repair and garage building on Figueroa Street, 120 x 156 ft., estimated to cost $150,000, with equipment.

The Pacific Coast Pipe Mfg. Co., Los Angeles, has awarded a general contract to W. E. Pollard, Redondo Beach, Cal., for the construction of a new plant at El Nido, Cal., to cost in excess of $75,000, with equipment. H. E. Owen is president.

The Los Angeles-Midway Pipe Line Co., Los Angeles, recently formed by officials of the Pan-American Petroleum Co., same city, with capital of $5,000,000, as a subsidiary, has plans under way for the construction of a pipe line to connect the local refining plant of the parent company with the Elk Hill Oilfields, Kern County, about 145 miles. It will cost in excess of $2,500,000, with pumping stations, booster plants, etc. E. L. Doheny, Jr., heads the new company.

The Pacific Gas & Electric Co., 445 Sutter Street, San Francisco, has purchased property on Ninety-second Avenue, near East Fourteenth Street, Elmhurst, Alameda County, and will have plans prepared at once for a one-story automatic power substation to be erected on the site. It will have a capacity of 10,000 kw., and is estimated to cost $250,000, with equipment. The company's engineering department is in charge.

The Bureau of Supplies and Accounts, Navy Department, Washington, D. C., will take bids until Sept. 16 for 16 pneumatic hammers for use at the Mare Island, Cal., navy yard, schedule 2593.

The Multnomah Block, Inc., Portland, Ore., has awarded a general contract to the Austin Co., Porter Building, for the erection of an automobile service, repair and garage building at 600 Washington Street, estimated to cost about $300,000, with machinery. A machine and repair shop is estimated to cost $45,000.

The Tucson Gas & Electric Co., Tucson, Ariz., has filed plans for the construction of an addition to its power house at 71 West Sixth Street, and will proceed with work at once.

The Arizona Power Co., Prescott, Ariz., is arranging for a preferred stock issue of $1,000,000, a portion of the fund to be used for extensions and improvements in power plants.

Milwaukee

MILWAUKEE, Aug. 25.

TURNING of the tide to better business appears to have become a fact. While immediate sales are still of a scattering character, inquiry is becoming more active. It is also to be noted that industrial construction is being resumed, at least in a small way, and more foundries and machine shops are making improvements which involve some equipment requirements. In some instances the effort is directed at increased capacity; in others, at modernizing shops for greater efficiency. Thus the demand for machine-tools may be described as remaining confined to bare necessities.

Bids are being taken by the Milwaukee Central Board of Purchases until Aug. 27 for one 3-ft. radial drill for the machine shop of the new Riverside pumping plant. No award as yet has been made of the two lathes, one 16 and one 30-in., on which tenders were received Aug. 12. Considerable other tool equipment remains to be purchased for this project. Joseph W. Nicholson is chief buyer.

The George J. Meyer Mfg. Co., 576 Clinton Street, Milwaukee, manufacturer of bottling machinery and supplies, has let the contract for the erection of a brass foundry unit, 50 ft. sq., one-story, to C. B. Danielson, 185 Thirty-fifth Street, local. Electric furnace equipment has been ordered. The architect is Arthur H. Kienappel, 445 Milwaukee Street.

The Precision Balancing Machine Co., Eau Claire, Wis., is a new corporation capitalized at $30,000, which intends to develop and market a patented machine of the character indicated by the corporate title. The principals are W. C. Tufts, A. E. Anderson and W. J. Mahoney. Details of plans will not be divulged until later.

The Fond du Lac, Wis., Board of Industrial Education intends to buy a number of small tools for the equipment of an addition to the automechanics section of the machine shop department of the local vocational school, which is being enlarged by an addition of 20 x 45 ft.

Edwin Hofstedt, proprietor Hofstedt Machine Works, Menasha, Wis., has disposed of the business to Willard Fahrenkrug and Fred Rohloff, employees, and with Edward Gazecki, shop manager, is relocating at Tacoma, Wash., where a general machine and service shop specializing in sawmill and logging equipment will be established.

The Milwaukee Sewerage Commission, 508 Market Street, is receiving bids until Sept. 5 for the sale of a Blaw-Knox steel building of the Prudential type, 110 x 130 ft., 12 and 16 ft. high, with windows, doors and skylights, and crane runway, now located on Jones Island. No machinery, tracks, cars, or other movable appliances will be included in the sale.

The Florence, Wis., Common Council has decided to undertake improvements in the municipal water works system costing about $25,000, including some new pump and motor equipment, and has engaged W. G. Kirchhoffer, consulting engineer, Madison, Wis., to handle the project.

The Reliance Automatic Light Co., Racine, Wis., manufacturing devices for automatic control of store window lighting system, and now located in leased quarters at 510 College Avenue, will build a plant of its own, 50 x 75 ft., one-story, at 1917-1919 Mead Street. Bids are being taken by A. L. Flegel, local architect. B. F. Flegel is president.

The Village Board, Mukwonago, Wis., accepted the bid of the Dayton-Dowd Co. for furnishing two centrifugal pumping units for the new municipal water works system. A. E. Austin is village clerk.

The Kenosha, Wis., City Manager, C. M. Osborn, closes bids Sept. 2 for the construction of the new municipal garage and machine shop, 50 x 150 ft., one-story, estimated to cost $30,000 with tools, fixtures, etc.

The Elkhorn, Wis., Common Council has engaged W. G. Kirkchhoffer, Madison, Wis., as consulting engineer to design improvements and additions to the municipal water works plant. An appropriation of $25,000 is available.

The Westby, Wis., Board of Education has placed contracts through Jacobsen Bros., architects, Minneapolis, Minn., for the erection of two wing additions, two-stories, 55 x 60 and 60 x 75 ft., to the local high school, to provide vocational training and shop facilities. The cost will be about $100,000. Richard M. Grimsrud is secretary of the board.

The City of Antigo, Wis., will soon be in the market for some additional pumping plant equipment for municipal water works improvements costing about $25,000. The work is in charge of W. G. Kirchhoffer, consulting engineer, Madison, Wis.

The Daniels Mfg. Co., Rhinelander, Wis., let the general contract for designing, erecting and equipping a $100,000 paper converting mill to L. A. DeGuere, consulting engineer, Wisconsin Rapids, Wis. It will be 60 x 200 ft., part two-stories high.

The Lancaster, Wis., Board of Education has let the general contract to Pehrson Bros., 555 Temple Court, Minneapolis, Minn., for erecting a $175,000 addition to the high school, the greater part to be equipped for manual training shops and other vocational instruction. The architects are Parkinson & Dockendorff, LaCrosse, Wis. F. J. Glanville is secretary of the board.

J. B. Eck of Sheboygan, Wis., has been appointed receiver of the Falls Motors Corporation, Sheboygan Falls, Wis., by the United States District Court at Milwaukee, which has granted the petition of the First Wisconsin Trust Co. for a receivership as a means of protecting bondholders and conserving the property. The trust company claimed that the Falls company defaulted in the payment of the first installment of $15,000 interest, due July 1, on a gold bond issue of $500,000, secured by a trust deed, under the provisions of which it now has made a demand for both the interest and the principal. A tax lien of $12,617 recently was placed against the property by the treasurer of Sheboygan county. The Falls company manufactures automobile engines.

South Atlantic States

BALTIMORE, Aug. 26.

THE Consolidated Gas, Electric Light & Power Co., Lexington Building, Baltimore, is completing negotiations with the city for land vacation to be used for its proposed steam-operated electric generating plant on Gould Street, and purposes to begin work on the structure at an early date. The initial unit will have a capacity of 60,000 hp., and is estimated to cost $4,000,000. The ultimate station will have an output of 140,000 hp., and will cost approximately $9,000,000. Herbert A. Wagner is president.

The Washington Clay Products Co., Loughborough, Md., recently organized, has taken title to a tract of six acres of land on the River Road, and will have plans drawn for a new plant for the manufacture of brick, hollow tile and kindred products. Machinery will be installed for an initial capacity of 40,000 pieces per day, to be tripled at a later date. The works will include a power house and machine shop, and will cost in excess of $75,000. The company also has a tract of property at Barnesville, Md., for raw material supply, and will install excavating, conveying, loading and other machinery for operation. W. H. Talbot, Rockville, Md., is vice-president.

Bids will be received by the Bureau of Supplies and Accounts, Navy Department, Washington, until Sept. 2, for 11,400 seamless condenser tubes for the Norfolk, Va., and Puget Sound navy yards, schedule 2587; for a quantity of sheet steel for various yards, schedule 2554; for a quantity of steel shapes and plates for various yards, schedule 2555; for 9790 ft. seamless steel tubing for the Washington yard, schedule 2571; until Sept. 9, for 8 air compressor sets with spare parts for the Puget Sound yard, schedule 2575; for 26,680 lb. ferrosilicon for Eastern and Western yards, schedule 2585; for a quantity of bolts, nuts, rivets and washers for Eastern and Western yards, schedule 2564; for one hydroelectric unit, surge tank and spare parts for the Mare Island yard, schedule 2566; for bolts, nuts, rivets, etc., for Eastern and Western yards, schedule 2563.

The City Council, Bryson City, N. C., will begin the construction of its proposed municipal hydroelectric generating plant on the Ocona Lufty River, about five miles from the city, with power dam and transmission system, to cost close to $80,000. C. E. Waddell, 78 Patton Avenue, Asheville, N. C., is engineer in charge.

The Bethlehem Steel Co., Bethlehem, Pa., has awarded a general contract to the Lewis Construction Co., Calvert Building, Baltimore, for the erection of a two-story addition to its mill in the Sparrows Point district, Baltimore, to cost approximately $50,000. The company is perfecting plans for the early construction of proposed additions in its tinplate mills here, estimated to cost $2,500,000, with award of contracts for equipment.

The Common Council, Hapeville, Ga., is said to be planning for the installation of electric-operated pumping equipment in connection with proposed extensions and improvements in its municipal waterworks and sewage system, for which a bond issue of $45,000 has been approved.

The Virginia-Carolina Equipment Co., Inc., Lynchburg, Va., is in the market for a locomotive crane, 8-wheel, 15 to 20 tons capacity, with 40 to 50 ft. boom.

L. F. Hobbs, Inc., P. O. Box 483, Norfolk, Va., machinery dealer, has inquiries out for a steam shovel, crawler type, about ¾-yd. capacity.

The General Gas & Electric Co., 50 Pine Street, New York, operated by W. S. Barstow & Co., same address, has plans under way for the erection of a new steam-operated electric generating plant on site now being selected between Columbia and Spartanburg, S. C. It will have an initial capacity of 20,000 hp. and will be used primarily for emergency service. The company recently acquired the property of the Columbia Railway, Gas & Electric Co., and will use the new station for such system. Preliminary plans are under advisement for other power plant extensions and transmission lines in this district, to cost in excess of $5,000,000. The work will be carried out over a period of months.

The Hackley-Morrison Co., 1708 Lewis Street, Richmond, Va., machinery dealer, has inquiries out for a lathe for wood-turning; also, for an end-matcher woodworking machine; for a 50-hp. motor, slip ring type, 3-phase, 60-cycle, 220 volts, and for a 40-ton locomotive, saddle-tank type, standard gage.

L. A. Kidd, Ellijay, Ga., is in the market for complete equipment for a sawmill, with engine, boiler and accessory equipment.

The Bureau of Supplies and Accounts, Navy Department, Washington, will take bids until Sept. 2 for 2950 ft. electric cable for the navy yard at Annapolis, Md., [illegible]dule 2588.

P. T. Ethridge, Empire, Ga., has inquiries out for a steam shovel, complete with motor power equipment, etc.

The Common Council, Southern Pines, N. C., is asking bids until Sept. 9 for motor-driven centrifugal pumping equipment and accessory apparatus; steel water tank and tower and other mechanical equipment for a municipal waterworks and sewage disposal plant. The Gilbert C. White Co., 406 West Main Street, Durham, N. C., is engineer.

Gulf States

BIRMINGHAM, Aug. 25.

PLANS have been filed by the Atlas Metal Works, Inc., 2201-5 Houston Street, Dallas, Tex., for the erection of a new one-story plant to cost about $40,000 including equipment. Foundations will be laid at once.

The Icy-O-Metal Products Co., Charlotte, N. C., is considering plans for a new branch plant at Jacksonville, Fla.,

for the manufacture of refrigerators and kindred equipment, estimated to cost $40,000.

Bids will be received by the commanding officer, San Antonio Arsenal, Tex., until Sept. 11, for a quantity of iron tacks, nail pullers, tinners' snips, adjustable wrenches, bolts, oilstones and gages, as per list on file.

The Eastern Texas Electric Railway Co., Beaumont, Tex., has completed negotiations for the purchase of the plant and property of the Lake Charles Railway & Electric Light & Power Co., Lake Charles, La., for a consideration stated to be about $1,000,000. The new owner plans for extensions and improvements in power plant and transmission lines. Permission has been secured to dispose of a preferred stock issue of $1,100,000, a portion of the proceeds to be used for the last noted purpose.

The Birmingham Engine & Machinery Corporation, Birmingham, Ala., machinery dealer, has inquiries out for an engine-generator set, about 375 kva., 3-phase, 60-cycle, with exciter.

The City Council, Dothan, Ala., is arranging for a bond issue of $750,000, recently approved by a vote of citizens, the proceeds to be used for the construction of a municipal hydroelectric generating plant on site selected at Chalkers Bluff.

The New Orleans Public Service Co., Inc., New Orleans, La., is disposing of a bond issue of $1,650,000, a portion of the proceeds to be used for extensions and improvements in power plants and system.

The St. Petersburg Motors, Inc., St. Petersburg, Fla., is perfecting plans for the construction of a two-story service, repair and garage building at Third Street and Fourth Avenue, 100 x 100 ft., estimated to cost $65,000 with equipment. The second floor will be given over to the machine and repair shop. The company is a subsidiary of the Ferman Motor Car Co., Tampa, Fla. Ralph E. Milliken, 264 Second Avenue, South, is local manager.

The Pure Oil Pipe Line Co., a subsidiary of the Pure Oil Co., Pure Oil Building, Columbus, Ohio, and Fort Worth, Tex., is planning for the construction of a pipe line with pumping station, etc., from Huffman Station to the storage plant of the Galena Signal Co. of Texas, Humble, Tex., about seven miles.

The Seabrook Electric Railway Co., Seabrook, Tex., recently organized with a capital of $1,000,000, plans for the installation of several automatic power sub-stations in connection with its proposed interurban electric line from Seabrook to Houston, by way of Harrisburg, for which equipment, including rails, feeder apparatus, electric power and mechanical apparatus, will be purchased in the near future. The project will involve in excess of $750,000. John H. Kirby, J. M. West and W. C. Munn, all of Houston, head the company.

The Lub-Tex Motor Co., Lubbock, Tex., has awarded a general contract to John Gelin, Lubbock, for the construction of a two-story service, repair and garage building at Twelfth Street and Avenue H, to cost about $70,000 with equipment. It will be 50 x 116 ft. A machine and repair department will be installed.

V. P. McCoy, president, Phoenix Machine Mfg. Co., Mobile, Ala., has plans under way for the construction of a new foundry building, which, with machinery and equipment, is to cost $75,000.

The Board of Fire Commissioners, City Hall Plaza, Baltimore, will erect a repair shop for department equipment at Key Highway and Webster Street. The total cost, including equipment, will be about $100,000. Walter R. Hough is president of the board.

Canada

TORONTO, ONT., Aug. 25.

SCATTERED buying of assorted lines of machinery and machine tools continues a feature of the Canadian market. According to local dealers and builders, business is good and orders received for one or two tools to a purchaser run into a fair total. The machinery hall at the Canadian National Exhibition, now in session in Toronto, is filled to capacity with exhibits of all classes and varieties of equipment and interest shown by prospective purchasers leaves little doubt in the minds of selling interests that considerable buying will shortly materialise as a result of the showing of tools in actual operation. Improved conditions are beginning to make their appearance in practically all lines of industrial enterprise and as a result machine tool buying on replacement account is becoming more prominent. Rebuilt and second hand tools are moving more freely than earlier in the year and dealers handling this class of equipment say that business for the month of August will compare favorably with the best month this year. Small tools are in good demand with prices holding at previous levels.

C. C. Seibert, 55 Frederick Street, Kitchener, Ont., is in the market for a new or second-hand 14-in. swing gap lathe, 4 or 6-ft. bed.

A company, of which John Hambury, Ottawa, Ont., is president, is preparing to build a lumber and sawmill on Granville Street, to cost $400,000. Considerable machinery, standard and special, will be purchased for the new works.

Thomas Sherridan, Brechin, Ont., is in the market for a drill press and grinder.

J. E. Vincent, Acton Vale, Que., is in the market for complete equipment for sash and door manufacturing plant.

Pepin Freres, St. Marguerite Village, Que., is asking for band saws, planers, etc.

The Nova Scotia Hardwood Products Co., Amherst, N. S., is building a factory there and is asking for prices and information on woodworking machinery and tools.

J. A. MacDonald, Elmsdale, Ont., is in the market for band saws, rip and edging saws, etc.

A. Johnston, Coldwater, Ont., is in the market for drill press, lathe, etc.

Fairgrieve & Son, 50 Dovercourt Road, Toronto, Ont., are in the market for an oven for baking japan.

E. M. Archibald has the contract to install a $20,000 power unit at Nictaux Falls, N. S., for the Middleton, N. S., town council.

Metcalfe & Shortt, West Street, Orillia, Ont., are in the market for lathe and emery grinder.

J. R. Eaton & Sons, 14 Peter Street, Orillia, Ont., are in the market for band saws, buzz saws, planers, etc. J. R. Eaton, 57 Coldwater Street, is purchasing agent.

B. Caplan, 731 B. Cadieux, Montreal, Que., will erect a factory to cost $75,000.

The New Brunswick Power Co., St. John, N. B., has awarded general contract to R. & J. Dempster, Manchester, England, for addition to gas plant, to cost $75,000.

The amalgamation of the Canadian branch of the National Acme Co. of Cleveland, Ohio, and the Russell Gear & Machine Co., Ltd., of Toronto, Ont., has been announced by T. A. Russell. The National Acme Co. is a manufacturer of screw machines and machine products. The Canadian plant is at present located in Montreal, Que., but according to present plans it will be closed and all the business of the new concern will be carried on at the Russell Gear & Machine Co. plant at King and Dufferin Streets, Toronto.

G. Lessard, 139 William Street, St. Hyacinthe, Que., is in the market for machinery and tools for blacksmith and machine shop.

L. P. Savage, St. Scholastique, Que., is in the market for a lathe, drill and grinder.

E. Roy, Ste. Therese, Que., will purchase machinery and equipment for a garage and automobile repair plant.

Rochon & St. Joes, 190 Murray Street, Montreal, Que., will purchase tools for an automobile repair shop.

E. Andrews, 281 Araga Street, Quebec, Que., is asking for a lathe and drill for an automobile repair plant.

The Listowel Garage Co., Listowel, Ont., is having plans prepared for a factory and is interested in the purchase of machinery and tools.

The Mulberry Creek Oil Co., c/o J. H. Cook, Lions Head, contemplates building a $300,000 oil refinery at Southampton, Ont., also a pipe line from oil wells in Eastnor Township to Southampton.

The St. Maurice Paper Co., Cap de la Madeleine, Que., is building a machine shop.

The Department of Lands and Forests, Provincial Government, Toronto, Ont., is having plans prepared for construction of airdrome and machine shop at Sault Ste. Marie, Ont.

Western Canada

The Creo-Dipt Co., Tonawanda, N. Y., is having plans prepared for the construction of a creosoting plant at Point Edward, B. C., to cost $50,000, for which bids will be called at an early date.

Moose Jaw, Sask., purposes to spend $150,000 on extensions to electric light and power plant.

The Prince Rupert Electrical Department will build a substation and install new equipment at Cow Bay, B. C.

Current Metal Prices

On Small Lots, Delivered from Merchants' Stocks, New York City

The following quotations are made by New York City warehouses.

As there are many consumers whose requirements are not sufficiently heavy to warrant their placing orders with manufacturers for shipments in carload lots from mills, these prices are given for their convenience.

On a number of items the base price only is given, it being impossible to name every size.

The wholesale prices at which large lots are sold by manufacturers for direct shipment from mills are given in the market reports appearing in a preceding part of THE IRON AGE, under the general heading of "Iron and Steel Markets" and "Non-Ferrous Metals."

Bars, Shapes and Plates

Bars:	Per Lb.
Refined iron bars, base price	3.24c.
Swedish charcoal iron bars, base	6.75c. to 7.25c.
Soft steel bars, base price	3.24c.
Hoops, base price	4.49c.
Bands, base price	3.99c.
Beams and channels, angles and tees, 3 in. x ¼ in. and larger, base	3.34c.
Channels, angles and tees under 3 in. x ¼ in., base	3.24c.
Steel plates, ¼ in. and heavier	3.34c.

Merchant Steel

	Per Lb.
Tire, 1½ x ½ in. and larger	3.25c.
(Smooth finish, 1 to 2½ x ¼ in. and larger)	3.50c.
Toe-calk, ½ x ⅜ in. and larger	4.20c.
Cold-rolled strip, soft and quarter hard	7.00c.
Open-hearth spring steel	4.50c. to 7.00c.
Shafting and Screw Stock:	
Rounds	4.15c.
Square, flats and hex	4.65c.
Standard tool steel, base price	15.00c.
Extra tool steel	18.00c.
Special tool steel	23.00c.
High-speed steel, 18 per cent tungsten	70c.

Sheets

Blue Annealed

	Per Lb.
No. 10	3.89c.
No. 12	3.94c.
No. 14	3.99c.
No. 16	4.09c.

Box Annealed—Black

	Soft Steel C. R., One Pass Per Lb.	Blued Stove Pipe Sheet Per Lb.
Nos. 18 to 20	4.30c. to 4.45c.	.....
Nos. 22 and 24	4.45c. to 4.60c.	5.10c.
No. 26	4.50c. to 4.65c.	5.15c.
No. 28*	4.60c. to 4.75c.	5.25c.
No. 30	4.70c. to 4.95c.	.....

Galvanized

	Per Lb.
No. 14	4.70c. to 4.85c.
No. 16	4.85c. to 5.00c.
Nos. 18 and 20	5.00c. to 5.15c.
Nos. 22 and 24	5.15c. to 5.30c.
No. 26	5.30c. to 5.45c.
No. 28*	5.60c. to 5.75c.
No. 30	6.10c. to 6.25c.

*No. 28 and lighter, 36 in. wide, 20c. higher.

Welded Pipe

Standard Steel	Black	Galv.	*Wrought Iron*	Black	Galv.
⅛ in. Butt	—41	—24	⅛ in. Butt	— 4	+19
¼ in. Butt	—46	—32	¼ in. Butt	—11	+ 9
1-3 in. Butt	—48	—34	1-1½ in. Butt	—14	+ 6
2½-6 in Lap	—44	—30	2 in. Lap	— 5	+14
7-8 in. Lap	—41	—11	2½-6 in. Lap	— 9	+ 9
9-12 in. Lap	—34	— 6	7-12 in. Lap	— 3	+16

Bolts and Screws

Machine bolts, cut thread, 50 to 60 and 10 per cent off list

Carriage bolts, cut thread, 40 to 40, 10 and 10 per cent off list

Coach screws, 50 and 10 to 65 per cent off list

Wood screws, flat head iron, 75, 20 and 10 per cent off list

Steel Wire

BASE PRICE* ON No. 9 GAGE AND COARSER	Per Lb.
Bright, basic	4.25c. to 4.50c.
Annealed soft	4.50c. to 4.75c.
Galvanized annealed	5.15c. to 5.40c.
Coppered basic	5.15c. to 5.40c.
Tinned soft Bessemer	6.15c. to 6.40c.

*Regular extras for lighter gage.

Brass Sheet, Rod, Tube and Wire

BASE PRICE

High brass sheet	17¼c. to 18¾c.
High brass wire	17¾c. to 18¾c.
Brass rods	15 c. to 16 c.
Brass tube, brazed	25¼c. to 26¼c.
Brass tube, seamless	21½c. to 22½c.
Copper tube, seamless	22¾c. to 23¾c.

Copper Sheets

Sheet copper, hot rolled, 20⅝c. to 21⅛c. per lb. base.

Cold rolled, 14 oz. and heavier, 3c. per lb. advance over hot rolled.

Tin Plates

Bright Tin		Coke—14 x 20	
Grade "AAA" Charcoal 14x20	Grade "A" Charcoal 14x20		Prime	Seconds
		80 lb.	$6.15	$5.90
		90 lb.	6.30	6.05
		100 lb.	6.45	6.20
IC	$11.25	$8.85	IC	6.65	6.40
IX	12.85	10.85	IX	7.85	7.60
IXX	14.40	12.55	IXX	9.00	8.75
IXXX	15.75	13.85	IXXX	10.35	10.10
IXXXX	17.00	15.05	IXXXX	11.35	11.10

Terne Plates

8 lb. coating, 14 x 20

100 lb	$7.00 to $8.00
IC	7.25 to 8.25
IX	8.25 to 8.75
Fire door stock	9.00 to 10.00

Tin

Straits, pig	56c.
Bar	60c. to 65c.

Copper

Lake ingot	16 c.
Electrolytic	15½c.
Casting	14½c.

Spelter and Sheet Zinc

Western Spelter	7½c.
Sheet zinc, No. 9 base, casks	10.85c. open 11.60c.

Lead and Solder*

American pig lead	9¼c. to 9¾c.
Bar lead	11c. to 12c.
Solder, ½ and ½ guaranteed	39 c.
No. 1 solder	36 c.
Refined solder	30½c.

*Prices of solder indicated by private brand vary according to composition.

Babbitt Metal

Best grade, per lb	75c. to 90c.
Commercial grade, per lb	35c. to 50c.
Grade D, per lb	25c. to 35c.

Antimony

Asiatic	12c. to 13c.

Aluminum

No. 1 aluminum (guaranteed over 99 per cent pure), in ingots for remelting, per lb	36c.

Old Metals

There is little change in prices but the undercurrent is strong. Dealers' buying prices are as follows:

	Cents Per Lb.
Copper, heavy crucible	11.50
Copper, heavy wire	11.00
Copper, light bottoms	9.50
Brass, heavy	6.50
Brass, light	5.50
Heavy machine composition	8.50
No. 1 yellow brass turnings	7.00
No. 1 red brass or composition turnings	7.75
Lead, heavy	7.00
Lead, tea	5.25
Zinc	3.75
Cast aluminum	15.00
Sheet aluminum	15.25